

GOOD-BYE, PBFA-I; HELLO, SATURN — After PBFA-I (Particle Beam Fusion Accelerator-I) completes its program of fundamental research in inertial confinement fusion next year, it will be converted into an X-ray source for the Simulation Technology Lab (STL) Project. Renamed Saturn (for its unique multiple-ring diode design), the machine will represent a significant advance in above-ground weapon-effects testing when the conversion is completed in 1987. The conversion, which will cost some \$5 million, includes major upgrades in the energy storage and pulse-forming sections of PBFA-I: energy storage will almost double, and nested triaxial diodes will provide a uniform radiation profile that will enhance the efficiency of the X-rays arriving at the target in the exposure area. Saturn will produce  $5 \times 10^{12}$  rads per second over a  $500 \text{ cm}^2$  area, making it Sandia's first large-area X-ray simulator. Saturn's major companion in the STL Project will be a new facility called Hermes III, a large gamma ray simulator. Plant Engineering's new Project Management Division 7866 is currently managing the STL Project; Kenneth Hanks is the Saturn project manager. Once completed, both Saturn and Hermes III will be in Gerald Zawadzka's STL Operations Division 1236.



# LAB NEWS

VOL. 37 NO. 23

SANDIA NATIONAL LABORATORIES

NOVEMBER 22, 1985



SECRETARY OF ENERGY John Herrington (left), Under Secretary of Energy Joseph Salgado, and several of their aides visited Sandia recently. Hosted by President Dacey, the group toured Area V and learned from Bill Snyder (6400, right) about Sandia's nuclear fuel cycle programs supported by the National Regulatory Commission; this handshake was the Secretary's thanks to Bill for explaining, and demonstrating some of the hardware used in, those programs. Later the group was briefed on verification and control technology by Roger Hagengruber (300), on safeguards and security by Bill Myre (5200), on our technology base and advanced development by Bill Brinkman (1000), and on our ten-year institutional outlook by Dacey. The Sandians found Secretary Herrington favorably impressed with his briefings and convinced of the need to continue support for Sandia programs that underlie the nation's security.



# Antojitos

**Thanksgiving Then** Thanksgiving these days means getting together with family or friends (ideally the classifications overlap), stuffing a turkey with which we stuff ourselves, relaxing, and preparing for Christmas shopping in Earnest (a shopping mall three towns over). The first three of these activities have a surprisingly accurate historical precedent.

Sometime during the autumn of 1621 (the precise date is unknown), the small number of Pilgrims who had survived the year in Plymouth Colony celebrated in similar fashion. They did not originate the holiday, but their young governor, William Bradford, remembered the fine Dutch custom of a Thanksgiving Day and sent four of his 20 men hunting. They returned with waterfowl, "of which this place did abound when they came first (but afterward decreased by degrees)"--Bradford was something of an ecologist--and a "great store of wild Turkeys." In addition they gathered shellfish, eels, and "Sallet Herbes" ("sallet" or "salad" originally meant something salted, which tells us how the Pilgrims dressed their greens). They also made wine of wild grapes.

To strengthen their friendship with the Indians, says Bradford Smith in *Bradford of Plymouth*, they invited Chief Massasoit to their feast. Miss Manners' strictures to the contrary not then widely accepted, the chief brought with him 90 hungry tribesmen. "The astonished Pilgrims accepted this pledge of friendship with whatever grace they could muster," says Smith. It helped that the Indians, probably realizing that there wasn't going to be enough turkey and dressing to go around, "went out and killed five deer which they brought to the plantation and bestowed on our Governor and upon the Captain and others," says Edward Winslow's letter of Dec. 11, 1621.

"Then for three days the whole party stuffed while the poor women--there were only ten of them even if you count the teenagers--wore themselves ragged trying to fill 142 demanding stomachs," says Smith. "No one has ever paid sufficient tribute to their part in the festivities."

While the women cooked, the men relaxed. There being no football on the TV, Captain Standish put on a military review, its musket volleys doubtless designed to impress the Indians. Then came games of strength and skill for both Indian and white. "Nothing had made them [the Indians] feel as close to the English as this, nor had they ever suspected such humanity in men who seemed strangely addicted to labor," says Smith. "Flushed with food, exercise, and the magic beverage these knowing strangers could press out of the grape, Massasoit and his braves headed home at last with a warmth of feeling which survived even the tests to which it was soon to be subjected." ●BH

\* \* \*

They began now to gather in the small harvest they had, and to fite up their houses and dwellings against winter, being all well recovered in health & strenght, and had all things in good plenty.

--Gov. Wm. Bradford



Here are some current volunteer opportunities for employees, retirees, and family members. If you would like more information, call Karen Shane (4-3268).

KNME-TV needs 14 "phone friends" to help during its on-air fund-raising. Tuesday, Dec. 3 (5:30-11 p.m.) has been scheduled for Sandians.

ALBUQUERQUE PUBLIC SCHOOLS is sponsoring its first Academic Decathlon to be held at Valley High School on Saturday Feb. 22. Each high school within APS will field a team that will be tested in history, math, science, economics, fine arts, languages, and literature. Volunteers are needed to help as proctors, interviewers, speech judges, test correctors, scorers, readers, ushers, etc.

NATIONAL ATOMIC MUSEUM is recruiting special consultants to staff its front desk. Museum is open seven days a week from 9 to 5.

ALBUQUERQUE METROPOLITAN CRIME STOPPERS is accepting resumes for membership on its citizens' advisory board.

HIGHLAND HIGH SCHOOL needs a volunteer to tutor students in math and science after school.

## Livermore Take Note

A former Sandia work experience student and summer program employee, Andrew Turnbull, has just published a soft-cover book, "Proverbs for Programming in Pascal," in collaboration with his Cal State Hayward professor, Louise Moser. The instructional reference book emphasizes the fundamental principles of structured programming and the elements of good programming style. Andrew dedicated the book to the memory of his father, Charles Herbert Turnbull, a member of the technical staff at Sandia for 19½ years.

\* \* \*

The Sandia Bowling League proved lucky for Bob Strout (8171) on Halloween when he "rolled a 5000." That is, he purchased a California Lottery ticket that revealed a \$5000 winning combination. He was at the Dublin bowling establishment as a part of the regular league bowling night. It was the first time that Bob had ever bought himself a ticket; it's unlikely to have been his last.

## Congratulations

Beverly Jefferson (8264) and Marvin Kelley (8444), married in Oakland, Aug. 31.

Lisa and Andy (8245) Lutz, a daughter, Julie Ann, Nov. 9.



## LAB NEWS

Published Fortnightly on Fridays

**SANDIA NATIONAL LABORATORIES**

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO  
LIVERMORE, CALIFORNIA  
TONOPAH, NEVADA  
AMARILLO, TEXAS

Sandia National Laboratories is operated by Sandia Corporation, a subsidiary of AT&T Technologies, Inc., and a prime contractor to the U.S. Department of Energy.

BRUCE HAWKINSON, Editor  
PHYLLIS WILSON, Writer  
GERSE MARTINEZ, Assistant Photographer  
BARRY SCHRADER, Livermore Reporter

Member, International  
Association of Business Communicators

## Congratulations

JoNon and Kevin (5163) Eklund, a son, Cameron Ross, Nov. 1.

Denise Krupka (133) and Don Andersen, a son, Ian Robert, Nov. 1.

Francine (1841) and Andy Bovard, a daughter, Erin Michelle, Nov. 4.

Maurise and Ron (1542) Price, a daughter, Elizabeth Maurise, Nov. 7.

## Sympathy

To Norman Wing (1111) on the death of his father in Kansas, Nov. 12.

### Air Bags or Seat Belts?



New Mexico has joined "New York, New Jersey, Illinois, Michigan and Missouri in mandating the use of seat belts, and at least 30 other states are considering a similar move. The rush toward seat-belt legislation stems from a regulation issued last year by US Transportation Secretary Elizabeth Dole. She decreed that by 1990 all new cars must be equipped with so-called passive restraints, either protective air bags or seat belts that wrap automatically around riders. But Dole said that the regulation would be rescinded if states representing two-thirds of the US population pass mandatory seat-belt laws by 1989. Auto companies, which oppose air bags because they cost about \$800, are lobbying furiously to promote seat-belt legislation." Time



## Antiquity Is Only Skin Deep

From the outside, the 1927 and '29 cars owned by Al Salmi (8361) and Roger Busbee (8173), respectively, look like restored antique autos. But inside — under their hoods and roofs — the cars are as modern and fast as the 1986 models.

Roger and Al rebuild old cars into "street rods." That's a '48 or earlier auto on which the owner has spent thousands of dollars — and about as many hours of toil — to make the car as comfortable as a new one and even more of a pleasure to drive.

For example, Roger owns a 1929 Model A Ford sedan delivery. This model is identical to Henry Ford's '29 Model A sedan, but Ford took out the rear seat, replaced the back window and panel with a door, and called it a truck. It was just what the small merchant and hauler wanted to deliver groceries, hardware, and other merchandise to customers.

Now Roger has added to it a few features that Ford never heard of — a 1977 Chevelle 350-cubic-inch V-8 engine with a Turbo 400 automatic transmission, front and rear independent suspension from a 1965 XKE Jaguar, tilt steering wheel, bucket seats from an '83 Mustang, complete stereo system, air conditioning, and a wood-grained dashboard from a 1937 Auburn.

"When I'm cruising down the highway, I'm probably enjoying more driving comfort than most of the motorists who are admiring my 'old putt-putt' and me for hanging on to it," Roger says.

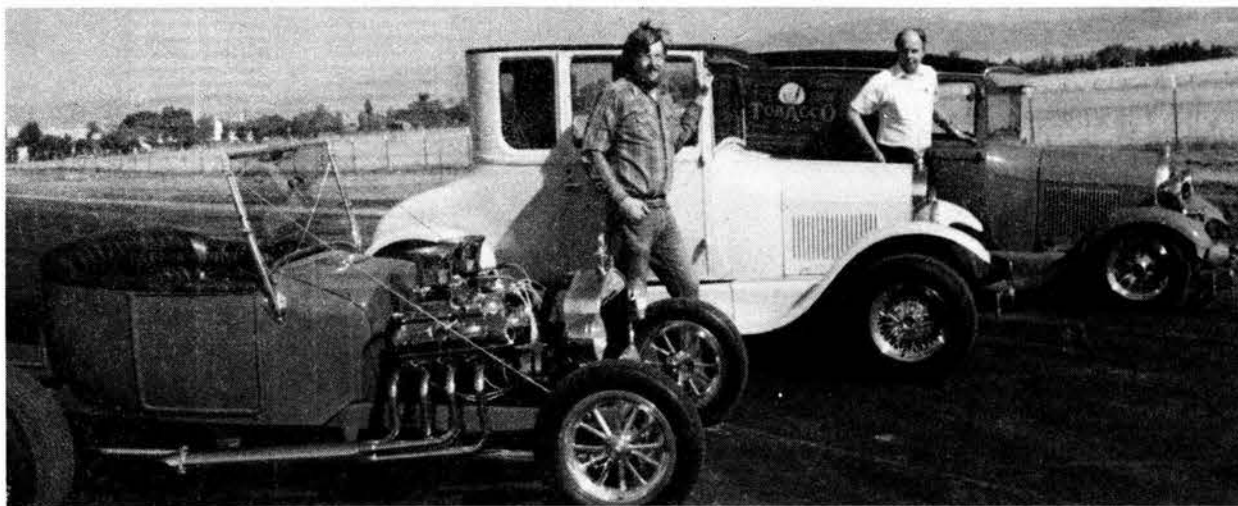
Al's pride and joy is a 1927 Model T coupe. It's known as the "Tall T" because it somewhat resembles an old telephone booth on wheels. But inside that 58-year-old body is a '65 Mustang 289-cubic-inch engine with automatic transmission, Pinto seats reupholstered in a rich burgundy, stereo tape deck, and, soon, air conditioning from a junked Toyota.

The Tall T was practically reincarnated from scrap. The body came from a junkpile on an Indian reservation, complete with real bullet holes from being used for target practice. The fenders came from another junkyard, the doors from yet another source, and the hood is a replica bought from a company that specializes in providing parts for old cars.

Al is restoring two other old cars at home — a 1924 Model T sedan, which is complete but not running, and a Model A one-ton truck, which he picked up for \$300 in Oregon and hauled home on a rental truck. Since his family enjoys outings in these street rods, Al plans to put seats in the truckbed for his kids and take them to car shows and swapmeets around the state.

Roger's other hobby car is a 1927 Model T roadster. The body was originally a pickup but is now shortened to a two-foot truck bed that holds the gas tank and battery. The engine, all polished chrome, is from a '65 Mustang — a 289-cubic-incher that he modified for more horsepower. The rear end is from a Ford half-ton pickup with dished American wheels. The front tires are on magnesium rims from one of his old dragsters. This open convertible is strictly for fair weather driving.

Both men were once members of the now



STANDING WITH their street rods are Roger Busbee (8173; right) with his 1929 Ford sedan delivery, and Al Salmi (8361) with his 1927 Model T coupe. In front is Roger's 1927 modified Ford roadster.



## SANDIA LIVERMORE NEWS

VOL. 37 NO. 23

SANDIA NATIONAL LABORATORIES NOVEMBER 22, 1985

disbanded Livermore Blockbusters, a drag racing club popular in town as far back as the 50s. Now they belong to the National Street Rod Association and attend car meets, mostly during the summer, in various parts of California and other western states. "We street rodders don't race or run road rallies," notes Roger. "We just like to park our cars to show them off, then trade shop talk and socialize."

Even though street rodders spend thousands of hours rebuilding their vehicles and probably won't get compensated fully if they decide to sell one, both Roger and Al make it clear that they find their hobby much more rewarding than trading in a three- or four-year-old gas guzzler regularly and plunking down another \$10,000 to \$15,000 for something that depreciates precipitously once it's driven off the showroom floor.

And you sure don't have to worry about keeping up with the Joneses when you're driving around in a 60-year-old car!

## Death



Richard Sundahl of Weapon Subsystems Development Division 8175 died suddenly Oct. 30 while on a business trip in Clearwater, Fla. He was 53.

Dick had been an engineer at Sandia for 28 years.

Survivors include his wife, two sons, and both parents.

## Sympathy

To Ted Johnson (8257) on the death of his father in Oakland, Oct. 27.

To Curt Specht (8446) on the death of his mother in Stockton, Oct. 24.

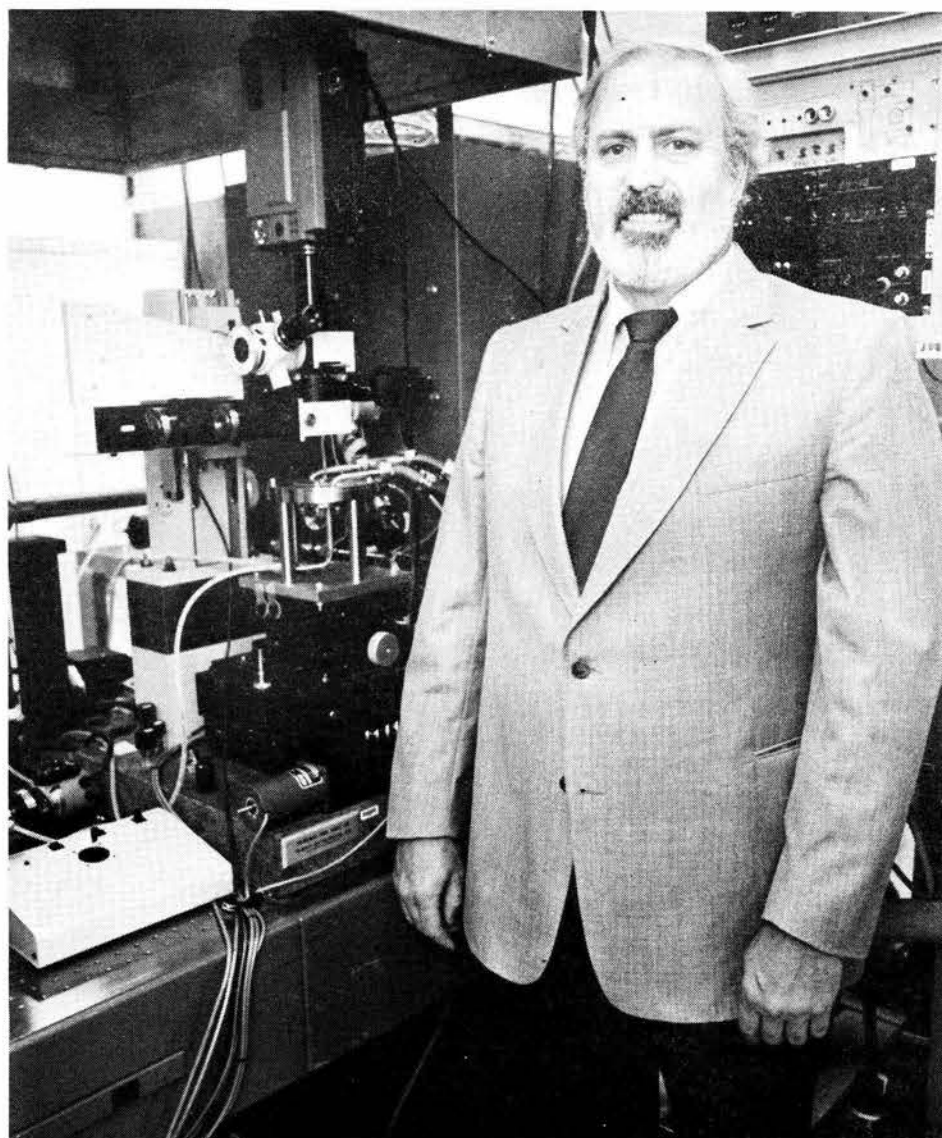
To Bob Bedford (8171) on the death of his mother in Cuyahoga Falls, Ohio, Oct. 15.

To Dorothy Wiemken (8026) on the death of her mother in Alameda, Nov. 9.

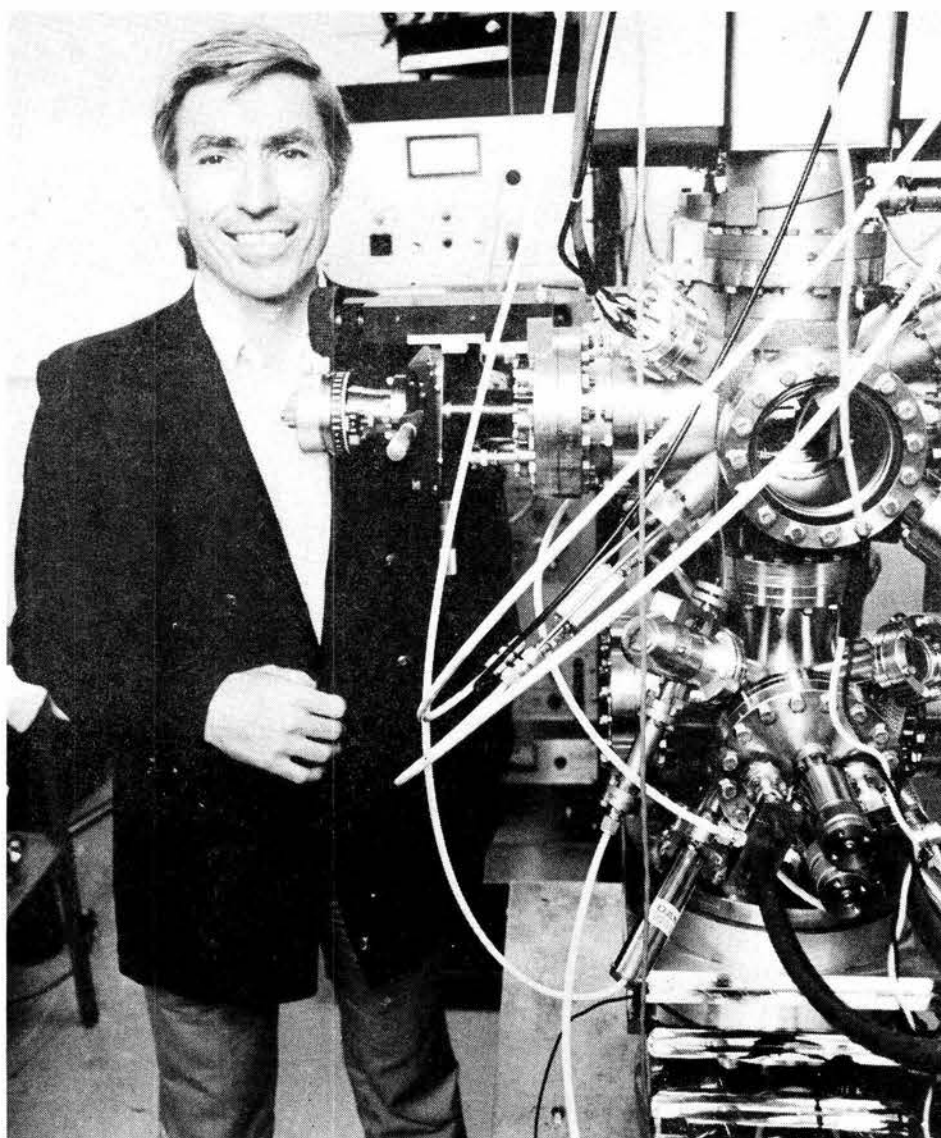


MAKING HIS FIRST VISIT to Sandia Livermore on Oct. 30-31, Senior Executive Vice-President Irwin Welber (2) was briefed by each director and held a group meeting with all supervisors in the auditorium. Here he chats with Don Hardesty (8361), at right, and Al Skinrod (8471) in front of the Combustion Research Facility just before the supervisors meeting. Welber will succeed George Dacey as president of Sandia on Feb. 1.





ONE PROJECT COORDINATOR is Wayne Johnson (left), supervisor of Laser and Atomic Physics Division 1126. To his right is a microscope with laser input and gas handling cell used in microscopic deposition and etching. CVD (chemical vapor deposition) work of this type is a precursor to the later work to be done in the BES-funded study. The other project coordinator is Tom Picraux,



supervisor of Ion-Solid Interactions Division 1111. To his left is an early version of a UHV (ultra-high vacuum) vapor deposition system for crystal growth and beam irradiation. Jeff Tsao (1111) and Tom will use the system to define critical parameters for beam-enhanced epitaxial growth to be studied under the new BES program. Tom's work represents the first half of study, Wayne's the second.

### **Proposal One of Three Funded**

## **Ion, Laser Beams May Aid Crystal Growth**

A Sandia "New Initiative Proposal" is one of three winners in a competition among all the national labs for FY87 special funding by the DOE's Basic Energy Sciences/Materials Sciences Division.

The project, "Advanced Growth Techniques for Improved Semiconductor Structures," will use ion and laser beams to stimulate the growth of high quality, layered semiconductor materials. Such materials would have applications in several fields: opto-electronics, photonics, microwaves, photo detectors, perhaps even integrated opto-electronic circuits that could couple the tasks of light emission, detection and signal processing in the same device.

"Early work and our preliminary investigations indicate that we may be able to build some essentially new materials that would be able to do things that current materials can't," says Fred Vook, director of Solid State Sciences 1100. "In addition to building new materials, we think we'll be able to improve the quality, spatial definition, and the growth rates of many materials — those would be major achievements."

The traditional crystal growth techniques — MBE (molecular beam epitaxy) and CVD (chemical vapor deposition) — demand relatively high temperatures (500° to 800°C), which can complicate growth and degrade the quality of superlattice interfaces. In addition, MBE has a very slow growth rate — about one micron (a micron,

or micrometre, is one millionth of a metre) per hour.

The new project will use ion or laser beams in conjunction with MBE and CVD to supply additional surface energy, which is expected to allow growth at lower temperatures (below 500°C) or higher growth rates and still achieve the high quality crystalline materials necessary for high-performance devices. "Our general aim will be to lower temperatures, speed growth, and create a more desirable surface," says Fred. "By 'a more desirable surface,' we mean an atomically smooth crystalline surface in which there are no islands, pits, or defects. We would also like to make atomically abrupt interfaces between individual layers of different composition. These superlattice materials could be used for an almost infinite variety of applications."

The program will be managed by Fred, Paul Percy (1110), and Jim Gerardo (1120). The project coordinators will be Tom Picraux (1111) and Wayne Johnson (1126). In addition to principal investigators Jeffrey Tsao (1111), Kevin Killeen (1126), and Brian Dodson (1131), it is planned that, as the project develops, other Sandians and Jack Washburn of UC Berkeley will be involved in characterizing the material.

In all, nearly 30 proposals, including three others from Sandia, were submitted to BES. The other two winners were Brookhaven's "Synthesis and Structure of New Conducting Polymers" and Oak

Ridge's "Ion Beam Deposition." The three will share a \$2 million budget in FY87; BES plans to continue funding the projects for three years.



WIELDING THE GARGANTUAN GAVEL is the new president of the American Translators Association, Patricia Newman (3144). She'll cap her 1985-87 term by heading the national convention here in Albuquerque. Why such a large gavel? "Because I need to control members of a most unruly organization without getting too close to them," Patricia notes.



## SDI Looks Good: Lujan

Congressman Manuel Lujan, Jr., recently spoke to Sandians on what's been going on in the halls of Congress during the current session. His remarks have particular significance for Sandians, not only because Lujan has been representing New Mexico in Washington longer than any other current representative or senator, but also because he is the ranking minority member of the House Science and Technology Committee as well as a member of the Interior and Insular Affairs Committee.

In his introduction, President Dacey thanked the Congressman for his support of both the new Strategic Defense Facility and the Instrumentation Systems Laboratory. Said Dacey: "These are timely and needed — we need all the help we can get, and some of the best help is from Congressman Lujan." Lujan responded that that was an old trick, thanking someone for something before they get it for you — "I guess now I'm committed," he said.

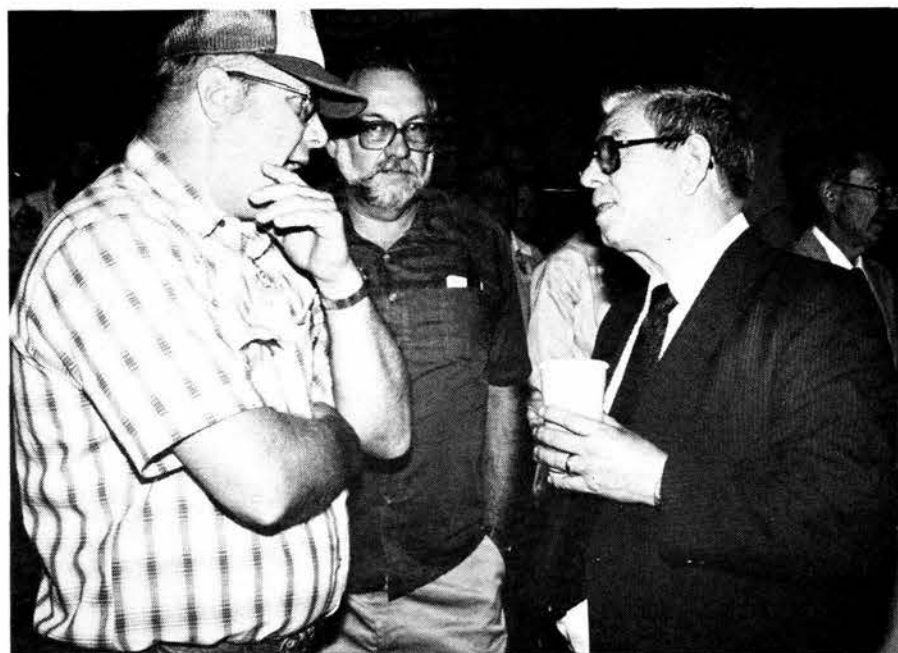
Lujan said that SDI (Strategic Defense Initiative) is where the money is going to be in the future, that SDI funding is up, and that he's "very encouraged" by President Reagan because he's determined to continue with the program. "And Sandia and Los Alamos will play a large part in the research," he said. "In fact, much of the work in the local labs gives you a good picture now of what SDI will be like. I agree with the president that SDI is not a bargaining chip even though the Soviets are trying to make us look bad. First we have SDI, then we talk about arms reduction."

Some of Lujan's thoughts on other topics:

**On space nuclear power:** In my [Science and Technology] committee, we are looking at where the space program will be going in the next 50 years. And applying nuclear power in space, something that Sandia will be involved with, will be an important part of this effort. For instance, for the space station — at first its power requirements will be in the kilowatt range, but when we get into the manufacture of medicines and materials in space we'll need megawatts of power and nuclear will provide it.

**On cooperation between the national labs and the universities:** In the past, I've been critical of the lack of cooperation in this area, particularly between Sandia and UNM, but now there is great cooperation. UNM has great potential as a research center for high-technology materials and as an important component of the Rio Grande Science Corridor. Sandia has been very cooperative in funding six faculty members with UNM. I'm very pleased but we can do more. All of us need to be more concerned with that interaction. In the past, we missed the boat because any kid in New Mexico who wanted to go into nuclear science should have gone to UNM. Now we are beginning to provide that opportunity.

**On the deficit:** We're spending \$965 billion and taking in \$755 — that's \$210 billion too much that we're spending. There are two reasons we should all be concerned about the deficit: first, the government borrows from the same place that we as individuals do. In fact, the government takes



VISITING WITH REP. LUJAN after his colloquium presentation was John Erni (3424). Waiting his turn was Paul Spellman (7242).

about 60 percent of the available money, which means that the money supply will be reduced and interest rates higher for you and me. And second, we spend 20 percent of the national income on interest servicing alone. This breaks down as \$267 billion for defense, \$442 billion for entitlements, and \$137 billion in interest. Congress wants to cut the budget by \$15 to \$20 billion, which means there won't be any big increases for anyone in the next five to six years.

**On trade:** We'll buy \$150 billion more than we'll sell this year. We've been discussing devaluing the dollar because a strong dollar works to our disadvantage. Perhaps we'll subsidize some exports, impose tariffs, or do what the Japanese, French, and Germans do — keep products out not by tariffs but by regulations. For instance, we might require all imports to be inspected in Indianapolis — right in the center of the country. Such a requirement would slow things down and increase the costs of imports.

**On tax reform:** Congress has been discussing the flat rate with no exemptions except for charitable contributions and mortgage interest (a lot of voters own their homes — we're not dummies!), and the

basic deduction would be raised to \$2000 per dependent. There might be a limit on what an employer can pay on medical plans. Anything over \$170 a month would be counted as income. We want to eliminate any kind of abuse and retain reasonable exemptions.

**On tech transfer:** The members of Congress think that all research funding must ultimately benefit mankind somehow. New developments from the labs should go into the private sector and eventually into the home. Of all the labs, Sandia is the best in this respect.

**On his forthcoming trip to the Soviet Union:** It is primarily to explore cooperation in space. For instance, they have experience in long-duration flights, and we on short duration. Our analytical equipment and technology are ahead of theirs. So by analyzing their data, we can get more information of benefit to both us and the Soviets. We've been deriving advantages from the Soviets' search and rescue satellites. The Soviets don't have pleasure boats and private aircraft, but we do, and many people have already been rescued by means of this Soviet technology that's at our disposal.



NOT JUST ANOTHER CHAUFFEUR — Barbara Pass (3543) won the grand prize at the ECP Kickoff last month, a trip to work chauffeured by President Dacey. The *ad hoc* welcoming committee at Benefits included ECP Executive Secretary Julia Gabaldon (3523), Personnel Director and ECP Chairman Herb Pitts (3500), and Troubadour Denny Gallegos (3743), who serenaded the arriving couple.



## **Tungsten Unique for VLSI Applications**

For the second year, Sandia organized and hosted a Workshop on Tungsten and Other Refractory Metals for VLSI (Very Large Scale Integrated circuit) Applications. This year the workshop attracted more than a hundred scientists and engineers from 51 U.S. and 9 foreign companies despite the difficult economic times now being experienced worldwide in the semiconductor industry.

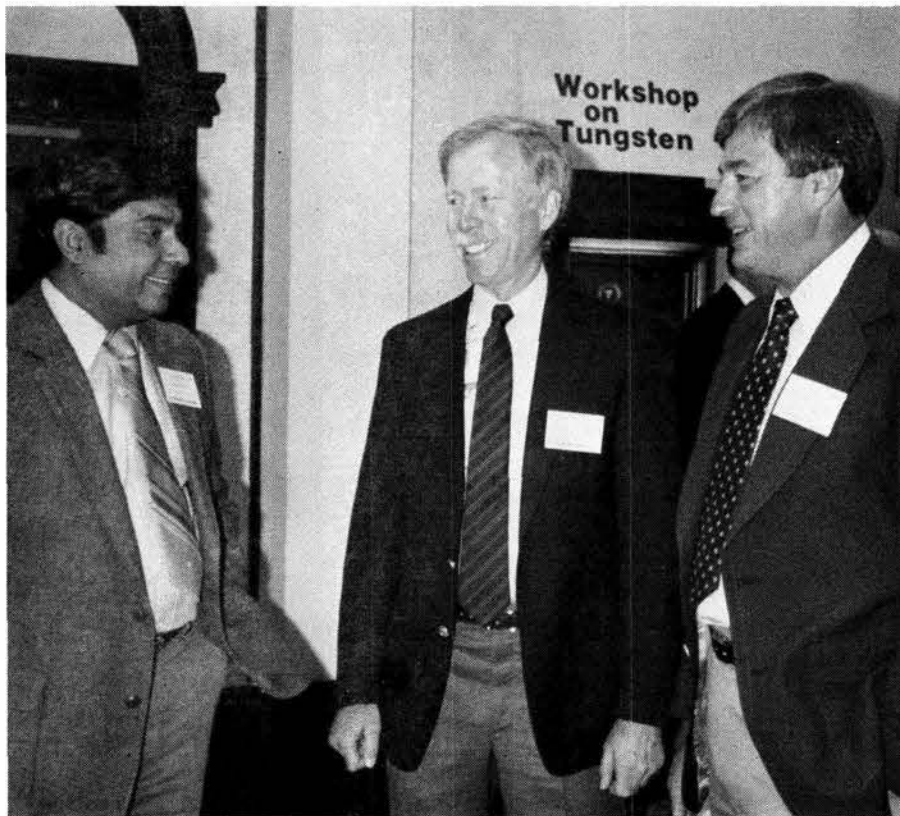
Because tungsten is self-aligning when applied by chemical vapor deposition (it automatically forms only where it's supposed to on an IC), it simplifies the problem of devising barriers to protect the electrical contacts (which lie at the base of holes cut through the silicon dioxide layer) between ICs. So tungsten has shown great potential in meeting requirements for these diffusion barriers and interconnects. Such requirements have become ever more stringent as feature dimensions shrink below 1 micrometre in width (a human hair is typically 100 micrometres in diameter).

Another reason for tungsten's promise is that the electrical conductivity of tungsten is ten times higher than that of tungsten silicide and the other similar high-melting-point metal compounds being considered for use in advanced microcircuits. "But the most attractive characteristic of tungsten is its ability to be deposited in a self-aligning manner by low pressure chemical vapor deposition [LPCVD]," says Bob Blewer (2147), chairman of the workshop.

Sandia organized the Oct. 7-10 conference jointly with UC Berkeley's University Engineering Extension to provide an opportunity for those beginning research in the new technology to meet, exchange ideas and results, and assess the prospects for the widespread use of tungsten and other refractory metals in integrated circuits of the future. "At last year's conference, the participants voted unanimously to hold the meeting again this year at Sandia," notes Bob. "And we found so much interest in the subject that it was necessary to double the length of the workshop this year to four days so that we could accommodate all the presentations and user meetings."

The conference attracted major representation from AT&T Bell Laboratories, IBM Watson Research Laboratory, GE Research Labs, Signetics/Phillips, Texas Instruments, Stanford University, Intel, and Sandia, among others, as well as from various laboratories in Japan, Canada, and France. The keynote address was presented by Pallab Chatterjee, director of VLSI Design at Texas Instruments.

Several major companies have initiated R&D activities in LPCVD tungsten since last year's conference, and notable breakthroughs were reported by those already active in the field. Ronald Wilson, GE-Schenectady, reported a new means to increase deposition rate by an order of magnitude without losing the "selective" character of the deposition, which permits self-aligned deposition of tungsten on exposed silicon contact windows. Takahiko Moriya, Toshiba Corporation, Tokyo, reported impressive improvements in



PALLAB CHATTERJEE (left), Director of VLSI Design at Texas Instruments, was the keynote speaker at the recent Sandia-hosted Workshop on Tungsten and Other Refractory Metals for VLSI Applications. Here he visits with workshop chairman Bob Blewer (2147; center) and Harry Weaver, supervisor of Microelectronics Materials and Processes Division 2147. Chatterjee's speech was entitled "Interconnects and VLSI: A Designer's Perspective."

preventing electromigration and electrical leakage effects in ICs that utilize tungsten. And Blewer (2147) and Maren Tracy (KMI) reported a technique to avoid tungsten silicide formation up to 1100° C at tungsten/silicon interfaces, perhaps opening the way to a broader range of applications in IC manufacture.

The proceedings of the conference will

be published in February in the first of a special series of hardbound books by the Material Research Society, according to Gordon Pike (1815), who is the MRS president-elect. The first volume will contain the papers from both last year's and this year's workshops; ordering information is available from Gail Oare, Director of Publications at the Society Headquarters (412/367-3003), or from Bob Blewer.



### **Favorite Old Photo**

While Larry Williams (ret.) was studying physics at Westport High School in Kansas City, Mo., he built this Tesla coil that would yield a two- to three-foot spark. It was used as a code machine at the Boy Scout Roundup in Kansas City in 1932 (when this picture was taken). Larry admits that the Federal Communications Commission was not pleased about its unauthorized operation.



# Supervisory Appointments

LAB NEWS, Nov. 22, 1985, Page Seven

## Take Note

A buyers' co-op for Amiga PCs, currently being formed, aims at group discounts on Amigas for its members. For details, call Dan Royalty (2124) on 4-1193.

\* \* \*

Bill Gross, professor of mechanical engineering at UNM, again invites Sandians to sign up for his class in "Entrepreneurial Engineering" (ME 456) next semester. In existence more than two years now, the course has assisted 33 new ventures through the start-up phase and created 65 full-time and 35 part-time jobs in new technical businesses in the state. Working engineers, like Sandians, are most welcome in the course. For more info, contact Prof. Gross at 277-6297.

\* \* \*

The YWCA is sponsoring its 13th annual trip to the Shalako ceremony, Zuni Pueblo's most important religious event of the year, on the night of Dec. 7-8. The bus will depart at 6 p.m. and return about 8 a.m. Cost is \$55, which includes transportation, dinner, insurance, gratuities, coffee and doughnuts, and a talk on the religious significance of the ceremony. More info from the YWCA on 884-0291.

\* \* \*

The New Mexico Art League, a non-profit group of amateur artists, has a Christmas exhibit running throughout December at its gallery at 3487 Juan Tabo NE (10-5 Monday-Friday, 1-5 Sunday). Several Sandia spouses are members of the League. The exhibit includes paintings, sculpture, weaving, pottery, and Norwegian folk art — all items less than \$100. Shoppers are welcome. For info on joining the group, call Adela Repp at the gallery on 293-5034.

### Medical Corner

## Blood Donors Don't Risk AIDS

United Blood Services, the group that runs the Bloodmobile at Sandia every Tuesday, is battling a misconception that's affecting the success of its blood drives around the state.

Some potential blood donors are apparently worried that they could somehow acquire AIDS (acquired immuno deficiency syndrome) by donating blood. Not so: "It is impossible to contract any disease, including AIDS, through the donation process," says Dr. Toby Simon, the UBS medical director. "The materials we use — needles, bags, etc. — are sterile and are used only one time, thereby eliminating the possibility of any virus being transmitted from one donor to another."

For the sake of the hospital patients served by UBS, it's important, says Dr. Simon, that the public understand that "it is not harmful or unhealthy to donate blood."

The Bloodmobile will be at the Bldg. 831 Conference Room every Tuesday through the end of the year (except for Nov. 26 and Dec. 17 when it will be in Conference Room B of Bldg. 822). Drop by and donate blood any time between 8 a.m. and 2 p.m.

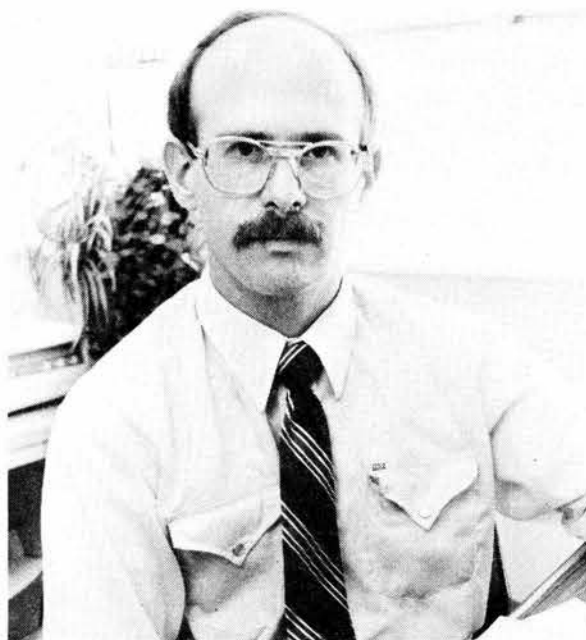


JOHN MIDDLETON (DMTS) to supervisor of Stockpile Evaluation Program Division III 7263, effective Nov. 1.

John joined Sandia in July 1958 as a member of the technical staff in the manufacturing development organization. Since then he has worked in a variety of activities: component development, Phase 1 and Phase 2 systems studies, weapons systems development, command and control systems, and advanced drill bit design. His most recent assignment was to resolve an electrical noise problem for two weapons systems. John was named a Distinguished Member of the Technical Staff in December 1983.

He received his BS in ME from the University of Illinois, and his MS in nuclear engineering from UNM.

Outside of work, John keeps busy "keeping the family fleet running" and on house maintenance tasks. He and his wife Nikki have two grown children and live in the NE Heights.



FRED SHWILLER to supervisor of Maintenance Operations Section 7815-2, effective Sept. 1.

Fred has been an MA V construction contract inspector and field engineer in the plant engineering organization since he joined the Labs in April 1982.

He has a BA in fine arts from UNM and is working on a second bachelor's in computer engineering at UNM under Sandia's Educational Assistance Program (EAP). He is a member of Kappa Mu Epsilon, national mathematics honorary.

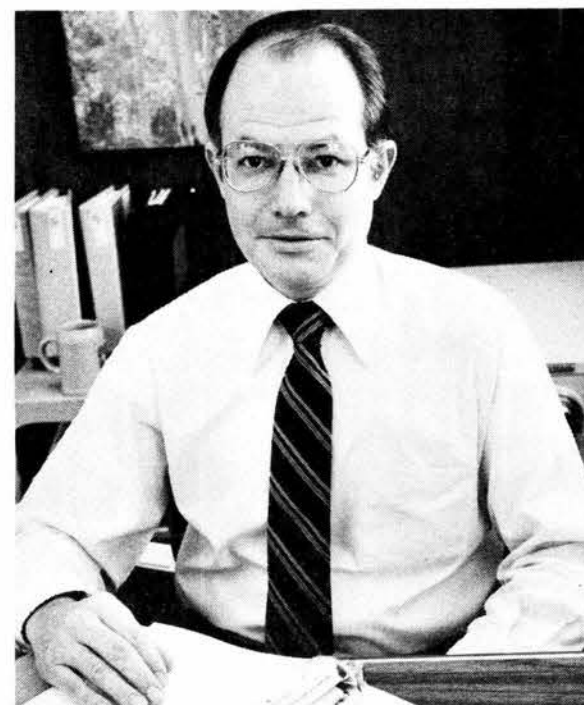
Fred is an avid bicyclist and enjoys sailing. He and his wife Sue Ann have two children. They live in the NE Heights.



BOB LINDSEY to supervisor of Electronic Fabrication Division 7474, effective Oct. 16.

Bob joined Sandia in July 1956 following graduation from Valparaiso Technical Institute with an associate degree in engineering electronics. He worked as a staff assistant technical with a radar development group until 1976, when he was promoted to technical staff associate in the same group. In April 1984 he became supervisor of the Electronic Fabrication Section, the job he's held most recently.

Bob is a ham radio operator and enjoys photography. He's also active in his church. He and his wife Barbara have six children (one at home) and three grandchildren. They live in the NE Heights.



MIKE SPITZ to supervisor 5000A, assistant to Vice President 5000, effective Nov. 1.

Since he joined the Labs in January 1978 as a member of the lab staff in the general accounting organization, Mike has worked as a budget analyst and a financial systems analyst. He's been a systems analyst in Financial Policies and Procedures Division 131 since last December.

Mike worked at a local accounting firm for more than three years before he came to Sandia, and is a member of the American Institute of Certified Public Accountants.

He received both his BBA and MBA from UNM.

Mike is a Cub Scout den leader, and is involved with administrative church activities. Other interests include travel and jogging. He and his wife Sandi have two children. They live in the NE Heights.



## SMMP at UNM: Triple Payoff

Sandia's effort to strengthen its ties with the University of New Mexico has taken a giant stride this fall with the establishment of a Special Microelectronics Masters Program (SMMP) at UNM.

Sandia established the SMMP three years ago because of a need for people with strong backgrounds in the kind of specialized microelectronics R&D work done at the Labs. The program enables new BS-level employees in EE to earn an MS while concentrating on that special knowledge.

However, as reported in the LAB NEWS education supplement last July, only a few schools, including Stanford and UC Berkeley, were approved for the program, which requires a special curriculum and facilities. "Our retention rate was not very

good," says Dick Schwoebel (1800), chairman of the Joint Working Group on Education, composed of representatives from Sandia and UNM. "New Sandians attending the California schools too often headed for Silicon Valley once they had completed the program. We decided that setting up an SMMP at UNM might help improve that retention record."

SMMP became a priority item for the Joint Working Group, and it was established in two months. "In terms of the curriculum, we really didn't have to start from scratch," says Dick. "Rather, we took a look at existing courses, and suggested how the emphasis might be shifted to fit SMMP requirements. We also managed, in a relatively short time, to give program partici-

pants access to modern equipment for processing semiconductors.

"The microelectronics program at UNM means, in effect, a triple payoff. UNM's curriculum is strengthened, Sandia SMMP grads are more likely to stay with us, and local industry — especially those organizations in the semiconductor business — will have a much larger pool of employment candidates, since SMMP courses are not just for Sandians, but for other UNM students as well." [Ed. Note: Karen Long (2116), one of three Sandians selected for SMMP this school year, is the first participant in the UNM program. See related story.]

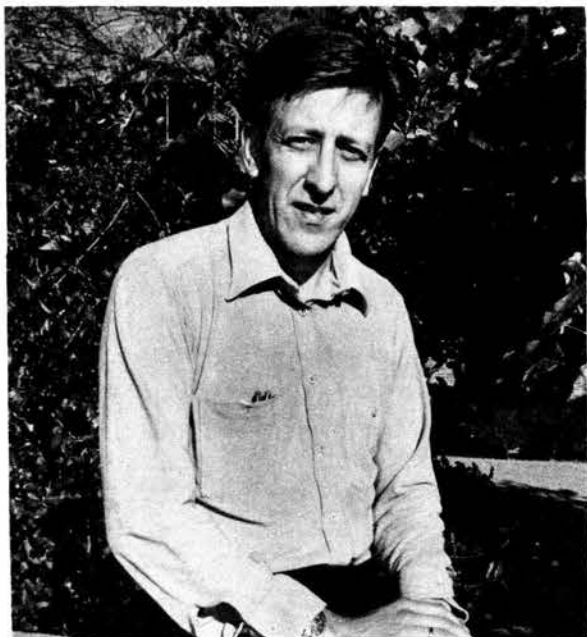
## New Adjunct Professors Contribute to SMMP

Dick Schwoebel reports that one of the most important Sandia contributions to UNM's SMMP is to make available three new adjunct professors to the Department of Electrical and Computer Engineering during the 1985-86 school year. Their students aren't the only ones learning a lot.

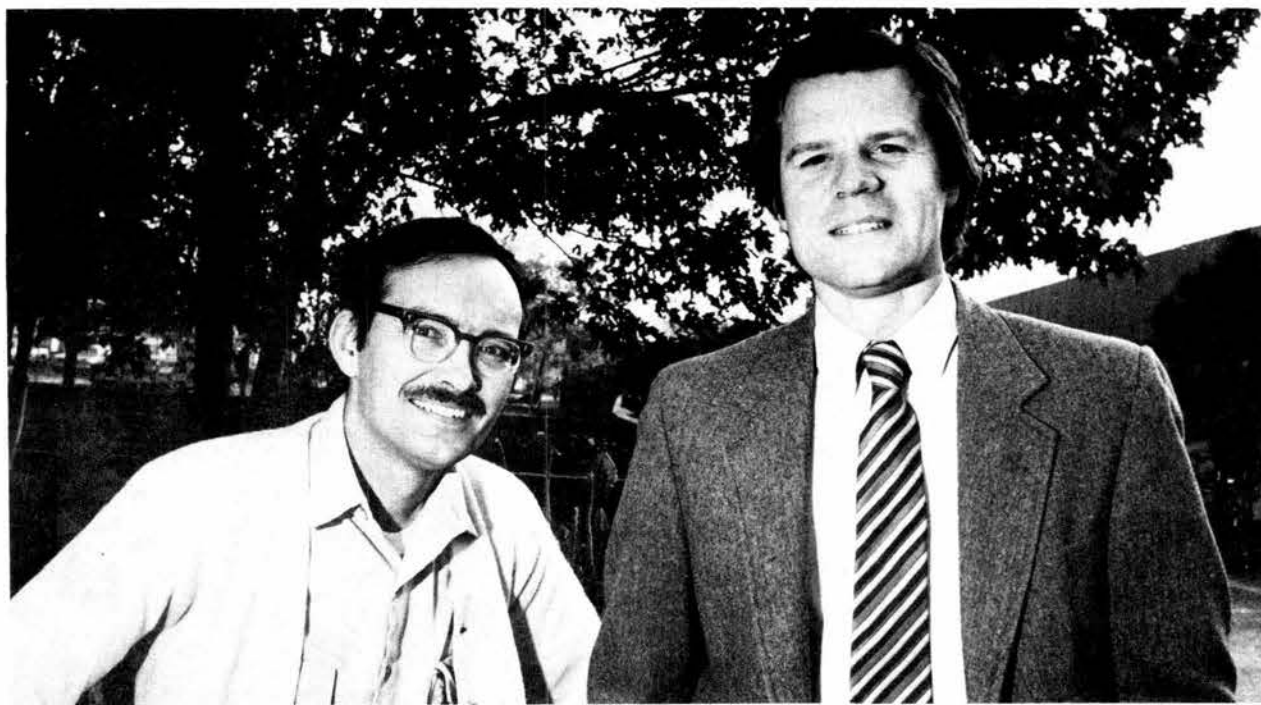
HARRY HJALMARSON (1151), who joined Sandia in 1980, received his PhD in solid state physics from the University of Illinois. A solid state theorist, Harry's work at Sandia has emphasized research on deep levels of impurities, though he has worked on other projects as well. That background serves him well in teaching his class, "Quantum Theory of Solids," at UNM.

Harry's class is a requirement for certain PhD candidates in EE and physics. Five students — some in EE, some in physics — are officially enrolled, but, says Harry, "Several people — a physicist, a chemist, and a visiting professor — who heard about the class after it got started are sitting in on an unofficial-audit basis."

The class in quantum theory is not a requirement for the SMMP curriculum. However, because Harry teaches it, other professors in the Electrical and Computer Engineering Department who specialize in areas such as semiconductor device technology are free to concentrate on subjects more closely allied with SMMP.



HARRY HJALMARSON (1151)



DAVE PALMER (2112) and JAMIE WICZER (2531)

"I've really had only one problem with the class so far," says Harry. "I've had to do a lot of 'pep talking' to the students to convince them of the importance of the subject matter. None of them is using solid state physics in his or her PhD work, so relevance was a concern. As we go along, however, they're beginning to see the important connection between this subject and many other academic areas, including microelectronics."

Though he has done some teaching, both as a graduate and undergraduate student, Harry has never taught quantum theory on an advanced level. "I was curious about what this kind of teaching would be like. I imagined it would be hard work — and it is. One thing is sure: I'm getting by on less sleep these days."

DAVE PALMER (2112), at Sandia almost 11 years — all in the microelectronics area — supervises the Labs' IC Simulation and Modeling Division. His class this semester, "Introduction to Digital Design," is a junior level undergraduate course requirement for students whose future work will involve electronics.

About 50 students (many from Sandia and Kirtland AFB) attend the class, which meets twice a week. Dave is quick to point

out, however, that he is at UNM from 1 p.m. until 7 on those days, so that he is available to talk with students and faculty members. "That way, we can cover some individual questions and aspects of the course that we sometimes don't have time for in the regular class session. Also, this gives me time to informally interact with faculty and administration — one ingredient of a solid UNM-Sandia relationship," he says.

Dave is encouraged and pleased by the high interest level shown by his students. "They tell me that their Sandia professors are extremely practical and most approachable. That makes me feel good about our UNM contribution," he says.

Like Harry, Dave finds his teaching stint a real challenge. "It's kind of like raising a kid," he says. "There's a joyful, rewarding feeling when it becomes apparent that new ideas are grasped and people can't wait to learn more. Then there are the days when you say to yourself, 'How did I ever get into this situation?' Luckily, those doubting moments pass quickly!"

Dave finds himself putting in a lot of time on preparation for the class ("Sundays are completely shot"), but he feels it's worth it. "I work hard preparing, because I know that students will be asking me questions I've never even thought of, and I like



to stay one step ahead," he says.

Though Dave's class this semester is not an SMMP requirement, he will be teaching a course next semester that is part of the SMMP curriculum. He's not certain of the exact title, but informally calls it "Design and Build Your Own IC."

"I'm bullish on the SMMP, and on Sandia's support of UNM during what is obviously a growth period for the university. Through our contracts and this on-campus involvement, we are seeing good technology, people, and research results flow to Sandia," says Dave. "I'm glad I can contribute to the effort."

JAMIE WICZER (2531) has worked in opto-electronics component development and research since he joined Sandia in 1977. His research, including studies of strained-layer superlattice semiconductor materials for infrared applications, ties in very smoothly with the class he is teaching at UNM this semester, "Infrared Optics and System Engineering."

About a dozen people attend Jamie's graduate-level class; ten are formally registered for the course, and two are drop-ins. "For many of my students, the class is definitely work-related," says Jamie. "About half of them are with companies that are doing work in infrared optics and imaging for organizations such as the Air Force Weapons Lab."

Jamie, recently promoted to supervisor of the Ceramic Components Development Division I, says he very much enjoys the UNM teaching experience. The class is a new challenge for him — it's the first full semester graduate-level course he's ever taught. "It's personally rewarding, because it's apparent my students are interested in the subject matter. They tell me they appreciate, too, the fact that we talk in real-world terms, not just theory."

"Their questions keep me on my toes," he adds. "Some of the things they ask are really quite profound. Our discussions have, from time to time, sent my thought processes off in totally different directions, and have caused me to rethink some of my current work activities at Sandia. That's definitely a side benefit — totally unanticipated — of this teaching experience."

Like Harry and Dave, Jamie finds that class preparation is time consuming, but worth the effort. "I feel a real responsibility to my students," he says. "If I'm well prepared, they don't get short-changed; it's as simple as that."

He says he would consider teaching this class or a class on a different subject sometime in the future, but "not this school year — my family would like to see me once in a while!"

Is the effort worth it? Definitely yes, says Jamie. "Dick Schwoebel convinced me of the importance of this Sandia commitment when we first talked about the possibility of my teaching at UNM this year. After a couple of months' experience, I'm more convinced than ever that establishing closer ties with UNM will result in mutual benefits for both the Labs and the university."



THAT'S ALL, folks. In a test similar to the ones conducted for last week's security barrier conference, a full-sized pickup traveling at a moderate speed impacted a barrier "designed to stop it cold," according to Patrick Sena (5257), project leader on the tests. Patrick reports the barrier did just that.

## Conference Held on Security Vehicle Barriers

Nuclear Security Systems Directorate 5200 conducted a conference last week on security barriers designed to stop terrorists who attempt to use vehicles (truck bombs, for example) in attacks on facilities.

Approximately 85 persons representing DOE facilities and Headquarters, the DOD, State Department, CIA, NASA, Secret Service, Department of Justice, and U.S. Capitol Security Service attended the meeting to discuss barriers and related subjects.

Technical sessions of the conference, sponsored by the DOE's Office of Safeguards and Security and Office of Military

Applications, concentrated on system design and integration, user experience, threat assessment, and state-of-the-art barrier technology.

Attendees also saw barrier crash tests, coordinated by Dennis Gutierrez, Track and Cables Division 7535, and staged by members of the division at the old cable site in Coyote Test Field.

Orval Jones (5000) welcomed the visitors at the beginning of the technical briefings, held in Bldg. 815. Sandia speakers included David Swahlan, Patrick Sena, and John Kane (all 5257) and Jim Baremore (5210). Patrick was conference coordinator.



### First at UNM

Karen Long (2116), selected for SMMP this year, is the first to attend UNM to gain her master's degree under the program. She has a full schedule of classes this semester: analog electronics, computer graphics, design of

computers, and junction devices.

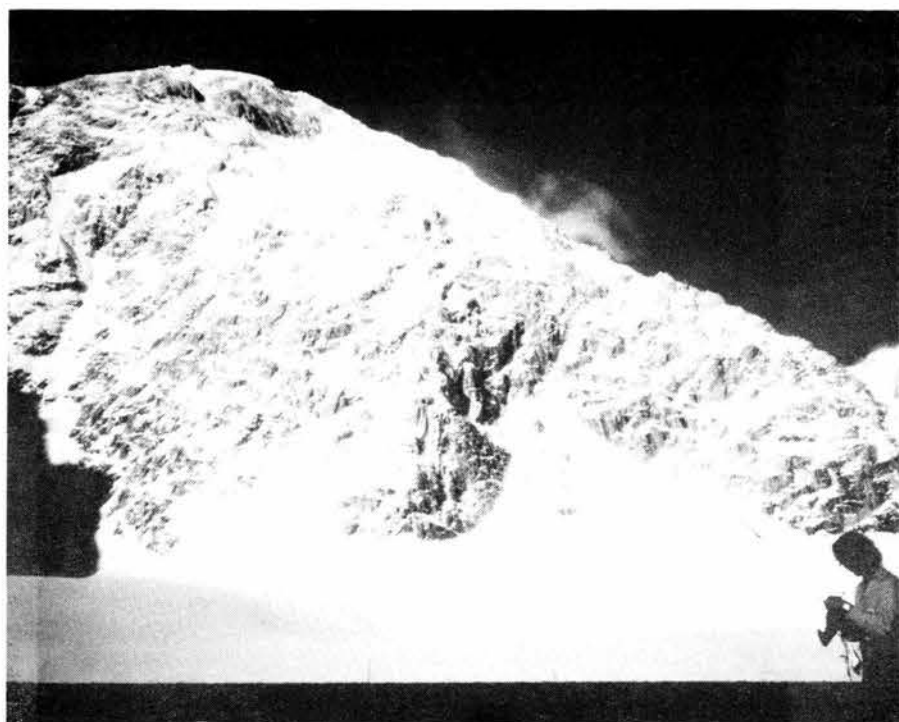
"The classes are pretty much what I expected," she says. "It's a tough schedule, but I'm used to the school routine, since I graduated from New Mexico State only last December." (Karen joined Sandia in January 1985 after receiving her BS in electrical engineering from NMSU. She had worked in the Labs' summer student program in 1982.)

Karen intends to have a full schedule again next semester, and will probably enroll in one summer school class to finish her program in the one year required of SMMP participants.

She's at UNM most of the time, but she comes out to Sandia occasionally to use computers for class assignments. "It's a definite advantage to be in SMMP and have access to Sandia's computers," she says. "Many of the other students have to scramble around for computer time."

Karen will work on chip design when she returns to Special Processors Division 2116 after her year at the University. "I'm very positive about the UNM program," she says. "I feel confident it will give me the specialized background I need for my job at Sandia."





MCKINLEY'S WEST RIB ascends from 11,000 to 19,500 feet. Picture was taken at 9500, looking up at 10,000 feet of vertical rise. In the foreground, right, one of the guides in Marguerite's party monitors the progress of a helicopter leaving the area with the body of an Air Force climber. He fell while climbing the west rib in the group immediately before Marguerite's.



DIGGING IN AT 14,500 — Two members of Marguerite's climbing party shovel out a pocket in the snow, making the foundation for their camp and providing protection from the high winds possible on Mt. McKinley at this altitude. The camp is perched on a snow ledge on the west rib overlooking the Kahiltina Glacier valley in the background.

### Unusual Vacation

## On the Roof of North America

Taking the Orient Express conjures images of luxury and intrigue, but Marguerite Kaminski, wife of Bill Ling (334), found herself on a more spartan Orient Express when she climbed Alaska's Mount McKinley — at 20,320 feet, the highest peak in North America.

Marguerite left Albuquerque for Alaska on May 9 and was on the mountain by May 11. Her climbing team included an official guide, his assistant, and three other climbers. Marguerite was the only woman in the climbing party.

Marguerite's group took the difficult west rib route — a technical climb requiring fixed ropes for load carrying and belayed rope teams. From its base at 11,000 feet, the route ascends through snow and ice couloirs — steep, narrow chutes that offer the most direct (and often the most dangerous) routes up (and down) a slope — to the rib's top at McKinley's 19,500 foot summit plateau.

"We had to belay ourselves constantly," says Marguerite. "The leader of a three-man team would drive an ice axe or snow picket into the snow and run the climbing rope through it. The axe or picket acts as an anchor — your insurance policy — in case of a fall."

The entire length of the rib is seldom climbed. Rarer still, Marguerite's group descended along the rib, taking the "Orient Express" — a name climbers have jokingly given the top of the route.

"It's no joke, really," explains Marguerite. "But it's too serious to talk about without joking. The descent is very steep. Some climbing teams, notably some Japanese teams, have 'taken the express' — they've fallen — descending this route."

McKinley is noted for some of the world's worst weather. May is normally the clearest month on McKinley, but weather in Alaska has been very erratic this year. The first week and a half in May drove most climbers from the mountain nursing frostbite and leaving lost tents and food behind. The summit success rate was only 15 percent.

It took six days and three camps to move up the main Kahiltina glacier and its northeast fork to the bottom of the west rib route. At the base of the glacier is the Valley of Death ice-fall, where blocks of ice two and three stories high have fallen from surrounding cliffs.

"It's beautiful, but dangerous," says Marguerite. "When it warms up, the blocks shift. I heard that by two weeks after our crossing, the ice had deteriorated so much that the trail was completely different. Crevasses had opened up where we had climbed through."

Marguerite slipped while crossing between two huge blocks of ice.

"I had my crampons dug into one block and my ice axe stuck into the other," she explains. "There I was, stretched between the blocks, looking up at my hand clutching my ice axe while my 60-pound pack pressed straight down on my back. On one side was a 50-foot drop. On the other it was more like 500."

Her rope-mates managed to get a rope around her pack and pull her back to one side. The rest of the climb was hard work, but gratefully less exciting. Marguerite's party camped for two nights each at 12,500 and 14,500 feet, then reached Balcony Camp — at 17,100 feet, their highest camp — without incident.

"We climbed high and slept low," says Marguerite. "We would climb with a cache of supplies up to our next day's camp, and then retreat to sleep in the camp below. The next morning we would carry our tents, bags, and stoves up to the cache and set up our new camp. That's why we slept two nights in each camp. This practice helped us get acclimatized."

Summit day was Sunday, May 26. It began at 5 a.m. Five of the six climbers set off for the summit. The sixth, suffering from altitude sickness, stayed at the Balcony Camp. The climbers reached the summit by mid-afternoon. It was sunny, windless, and -13°F — balmy by McKinley standards.

Descent from the summit was difficult,

requiring four rappels and considerable down-climbing.

"It was harder going down than going up," says Marguerite. "In down-climbing, we were roped together in a five-man team going down the slope trying to stay in each other's footsteps. If someone slips — and I did once — everybody grabs for the hill and holds on."

The climbers returned to Balcony Camp at 10:30 p.m.

Descent to Kahiltina glacier took one day. The group left the west rib at the 14,500-foot level to follow the faster, more commonly traveled west buttress route.

On Tuesday, May 28th, Marguerite and her climbing companions triumphantly arrived at their landing area, only to wait through four days and nights of snow before they could fly out on June first.

It must have been fun — Marguerite is already planning more climbing. She and husband Bill are preparing for a 1986 trip to the Soviet Union to climb in the Pamirs range — which boasts of Pik Kommunism, at 24,590 feet, one-fifth higher than Mt. McKinley.

### Trip Logistics

**Training** — In addition to daily swimming, biking, and cross-country skiing, Marguerite climbed 2000 feet on snow with a heavy pack two to three times weekly. She also worked part-time during April at Sandia Crest House, shoveling snow at 10,678 feet. Marguerite recommends that anyone planning to climb McKinley read John Waterman's book, *Surviving Denali* (the Alaskan name for Mt. McKinley). "It'll wake anyone up to the realities of mountaineering on McKinley," says Marguerite.

**Guide Service** — Marguerite's party was guided by Mountain Trip, one of six official guide services for climbing on Mt. McKinley. The guide fee for each climber was \$1950.

**Timing** — McKinley has up to 20 hours of daylight in May. That, plus the weather, make May the best month for climbing. Temperatures are warmer in June, but there are more storms and more opened crevasses to contend with.



# Team Studies Improved Info Exchange in NWC

Next month, after almost a year of intensive study, a team of representatives from each of the Nuclear Weapons Complex (NWC) agencies will submit to the Computer Integrated Manufacturing Project a report that may serve as a guide for information exchange within the NWC for years to come. The Interagency Information Study (IIS) team was established as part of the long-range planning for Computer Integrated Manufacturing (CIM) in the NWC.

The IIS team report will establish the guidelines for an information system that would integrate design, development, testing, production, and stockpile information with program, cost, and schedule data. (The NWC has not yet committed itself to implementing such an information system.)

What is envisioned for the entire NWC is a computerized information system similar to, but larger and more complicated than, the Product Definition Exchange link between Sandia and BKC (Bendix Kansas City) that enables interchange of weapon design information.

IIS team members conducted more than 200 interviews with people throughout the NWC to survey information requirements of each agency and the kinds of information exchanged. During each interview, team members assessed the status of information exchange within the NWC and asked other questions such as, "What problems do you currently have with interagency information?" and "What interagency information is the most vital to your job?"

Interviews were conducted at 12 sites — seven production agencies, four design laboratories, and DOE Albuquerque Operations. The team members then analyzed the interview data and constructed a functional model of the entire NWC information exchange (see chart). The model was



INTERAGENCY Information Study Planning Team meets at Sandia. Standing are Walt Dalby (5111), left, and Paul Morris (DOE/AL), right. On the left side of the table, from back, are Randy Harrison (2812), Dick Naffziger (LANL), Al Bennett (Bendix), and Paula Naillon (LLNL). Seated at right are John Sharp (2811), Steve LeCrone (Pantex), Chuck Salley (Y-12), and George Mahfouz (Mound). Not shown is Bob Wagner (GEND).

developed from an information modeling methodology created by Holland System Corporation. The team also built a network of IBM personal computers and developed PC-based software to maintain and process the data.

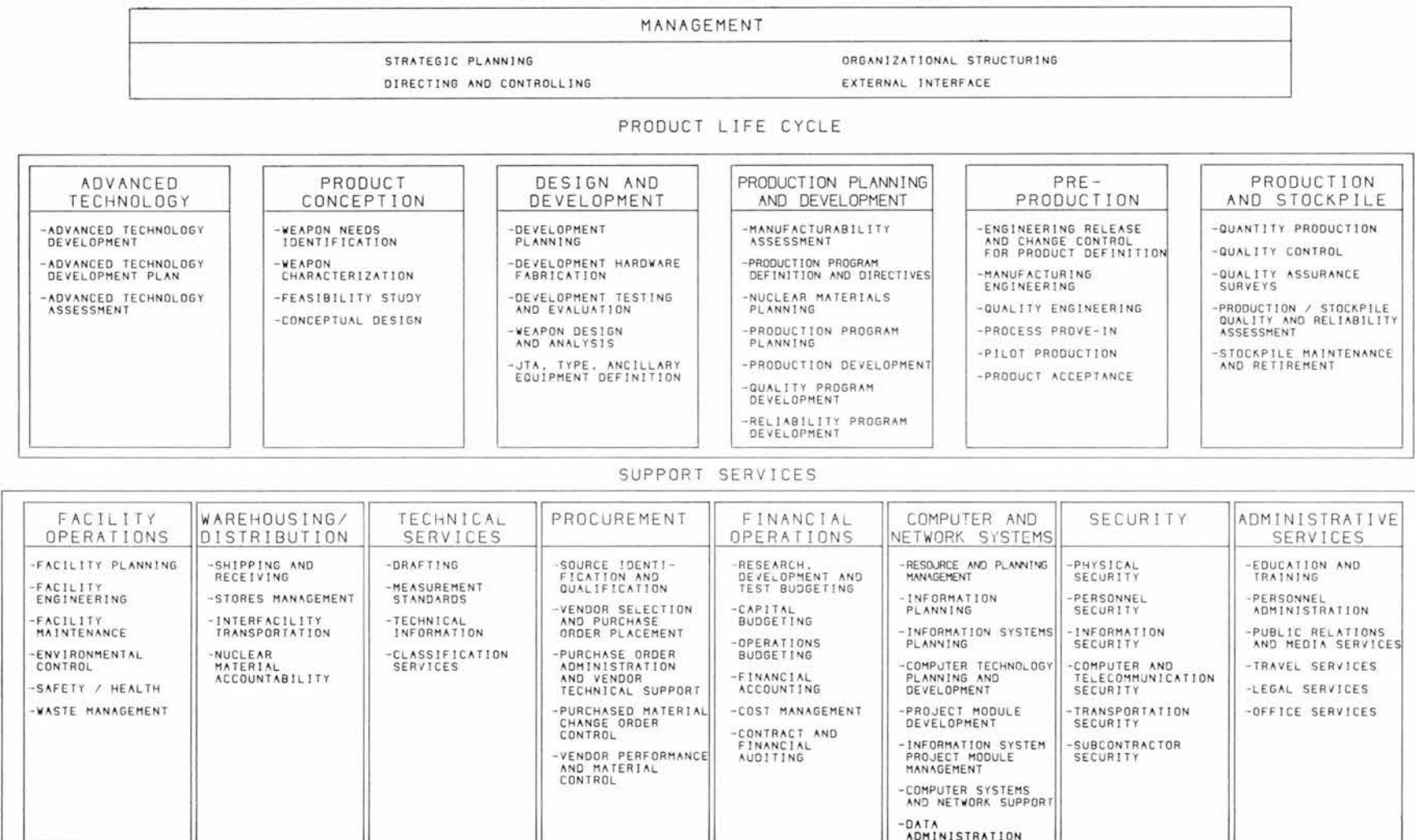
IIS project leader is John Sharp of NWC CAD/CAM Integration Division 2811.

"Ours is a unique study," John says. "To our knowledge, this is the first time that a multi-site/multi-viewpoint assessment of the varied information needs of the NWC has been performed. The sheer volume of information requirements derived from the interviews presented a significant data management challenge. But we have now identified the entire interagency information flow that occurs during the nuclear weapon life-cycle."

The work of the IIS team is necessary, but it's only the first step, John indicates. A

plan for developing a modern information system is currently underway. The team is now defining the initial elements of the plan and establishing operational goals. If the NWC elects to implement the plan, the pilot project (initiated out of the DOE/AL CIM office) will eventually involve all interagency information exchange activities.

"Implementing a computerized information exchange system within the NWC would be a major undertaking," John says. "We'd need new hardware and software technologies to solve some of the problems, so I know the project would take years to complete. But an efficient information exchange system could have potential benefits for future production of high quality weapons at the lowest cost. Our project shows that it is technically feasible to develop such a system."



BUSINESS MODEL of the Nuclear Weapons Complex is shown on this graph. The Interagency Information Study (IIS) Planning Team conducted more than 200 interviews with people throughout the Complex before analyzing the com-

plexities of information exchange. The IIS team report will provide the basis for planning a computerized information system within the Complex.



## Events Calendar

- Nov. 22-23 — ASUNM Crafts Fair, 9 a.m.-7 p.m., free admission, UNM ballroom, Student Union Building.
- Nov. 23-24 — Christmas Flower Show, Sat. 3-6 p.m., Sun. 10 a.m.-4 p.m., free admission, Albuquerque Garden Center (10120 Lomas NE).
- Nov. 24 — "The Many Faces of Mozart," New Mexico Symphony Orchestra (first concert in Sinfonietta series); conductor and piano soloist, Neal Stulberg; 3 p.m., First United Methodist Church, 842-8565.
- Nov. 24 — Concert, Albuquerque Philharmonia Orchestra (Sibelius, Faure, Wagner, Bizet, Mozart); James Whitlow, conductor; Wayne Sharp, French horn; free admission, 3 p.m., KiMo.
- Nov. 24 — Movietime at the KiMo — Boy Meets Girl Series: "The Shop Around the Corner," American (1940), Jimmy Stewart and Margaret Sullivan, 7:30 p.m., KiMo.
- Nov. 25 — "Hawaii," narrated by Don Cooper, Travel and Adventure Film Series, 7:30 p.m., Popejoy Hall.
- Nov. 27 — Showtime at the KiMo: North Carolina Dance Theatre (ballet), 8 p.m., KiMo.
- Nov. 29-Dec. 1 — "The Nutcracker," the Southwest Ballet Company with the New Mexico Symphony Orchestra, 7:30 p.m. Nov. 29-30, 2 p.m. matinees Nov. 30-Dec. 1, Popejoy Hall, 842-8565.
- Nov. 29-Dec. 1 — "The Nutcracker," Ballet Renaissance West, 8 p.m. Nov. 29-30, 2 p.m. matinees Nov. 30-Dec. 1, KiMo, 898-4588.
- Nov. 29-Dec. 1 — Rio Grande Horse Show, Horse Arena, State Fairgrounds.
- Nov. 30 — Annual Christmas Parade (floats, bands, horses), 10 a.m., downtown, 247-2757.
- Nov. 30-Dec. 1 — Senior Citizens Arts and Crafts Fair, Sat. 9 a.m.-5 p.m., Sun. 1-4 p.m., free admission, Convention Center.
- Dec. 1 — Movietime at the KiMo — Boy Meets Girl Series: "Knife in the Water," Polish (1962), directed by Roman Polanski, 7 p.m., KiMo.
- Dec. 3 — Christmas Concert, New Mexico Symphony Orchestra and Chorus, 6:30 p.m. and 8:30 p.m., KiMo, 842-8565.
- Dec. 4 — Showtime at the KiMo: Strunz and Farah, guitar concert, 8 p.m., KiMo.
- Dec. 4 — John Gary in Concert, UNM Cultural Program series, 8:15 p.m., Popejoy Hall, 277-3121.
- Dec. 5 — Dickens classic, "Great Expectations," performed by the Guthrie Theater, 8 p.m., KiMo.
- Dec. 6 — Eugene Sarbu, violinist (benefit for Albuquerque Youth Symphony), \$15. 8:15 p.m., Keller Hall, 277-4402.
- Dec. 7-8 — "Sleeping Beauty," Albuquerque Children's Theatre, 1:30 and 3:30 p.m. both days, Popejoy Hall, 277-3121.
- Dec. 7 — "Pito Perez," award-winning play starring Manuel Guizar, KiMo Albuquerque-Mexico artists exchange program, co-sponsored by Partners of the Americas, 8 p.m., KiMo.



SOFTBALL CHAMPS in Sandia's A League and winners of the end-of-season tournament for the 1985 season were (from left, front row): Mark Tucker (7544), Tim Gilmore, Bob Padilla (both 6446), Chris Robertson (5242), and Dan Lucero (6422); (back row) Tim Mooney (5142), Rick Givler (1511), Ron Simon (2341), Steve Mahnesmith (2852), Dave Gangel (5245), Chuck Yagow (2853), Ron Kulju (2312), Brian Schwaner (2857), and Rob Turner (2312).

## Fun & Games

**Cross-Country Skiing** — Classes for beginning and intermediate x-country skiers will be offered next month by the Sandia Employees Recreation Program (SERP). A classroom session on fundamentals and equipment for beginners is scheduled Dec. 10 from 7-8:30 p.m., Rm. B-5, Coronado Club. A follow-up outdoor session (location to be announced) on Dec. 15 will let you apply what you've learned.

For the intermediates (those with previous instruction or sufficient experience to have mastered x-country fundamentals), an indoor session is scheduled Dec. 17 from 7-8:30 p.m., Rm. B-5, C-Club, and an outdoor session the following Sunday, Dec. 22.

Cost of either class is the same: \$21 for those without equipment, \$15 for those who have equipment. Call Kim Durnell at the SERP office, 4-8486, for more info and sign-up.

\*\*\*

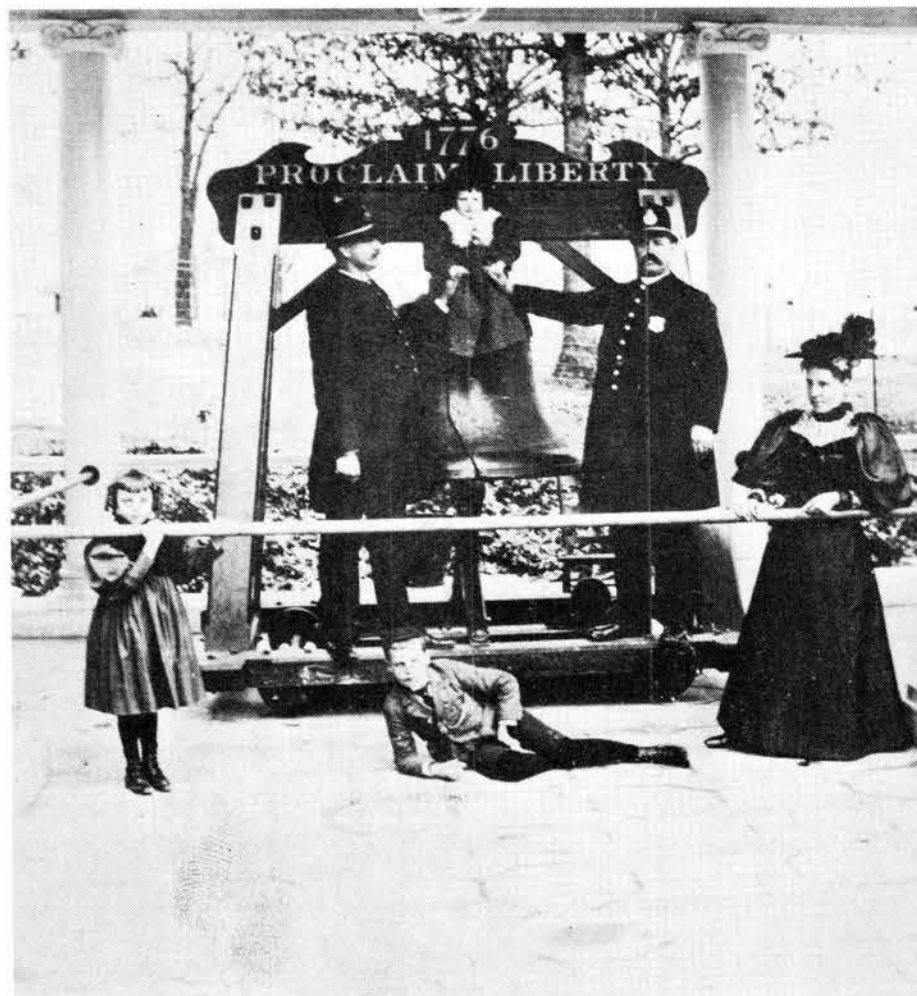
**Women's Basketball** — You're invited to a pre-season "Kickoff Party" sponsored by the Women's Basketball Association on Dec. 4 at the Coronado Club from 4:30-6:30 p.m. Stop by for free munchies and learn about the WBA and SERP women's basketball.

\*\*\*

**Downhill Skiing** — The Coronado Ski Club plans three ski trips in December: Wolf Creek, Dec. 6-8; Purgatory, Dec. 13-15; and Utah, Dec. 27-Jan. 2. Sharon Mackel, 6-3190, and Steve Ross, 4-7017, have details, including cost info. The club welcomes new members any time, so join up now before all that beautiful snow starts to fall! Contacts: Curt Moses, 4-3358, or Steve.

\*\*\*

**Men's Basketball** — The SERP winter basketball program will start in early January. Rosters should be sent to the recreation office (C-Club) by 4 p.m., Dec. 12. Questions? Call Tom Fischer, 4-8966.



## Favorite Old Photo

That's my mother when she was about three years old sitting on top of the original Liberty Bell in Atlanta, Georgia. It was taken during the Cotton State and International Exposition held on Oct. 4-8, 1895. That's my grandfather, Harry Heteroth, on the right with my grandmother. My aunt and uncle are in the foreground. Grandfather was a member of the Philadelphia police force and was one of four selected to escort the bell to Atlanta and back. — Mac Shannon (ret.)



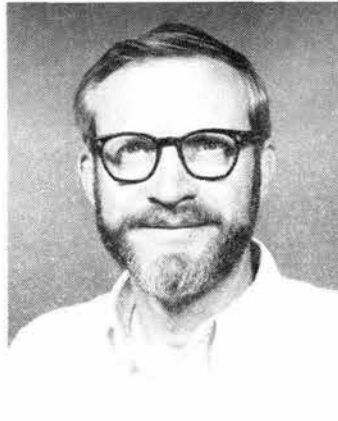
# MILEPOSTS

## LAB NEWS

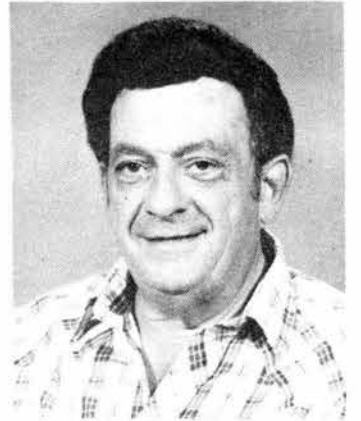
NOVEMBER 1985



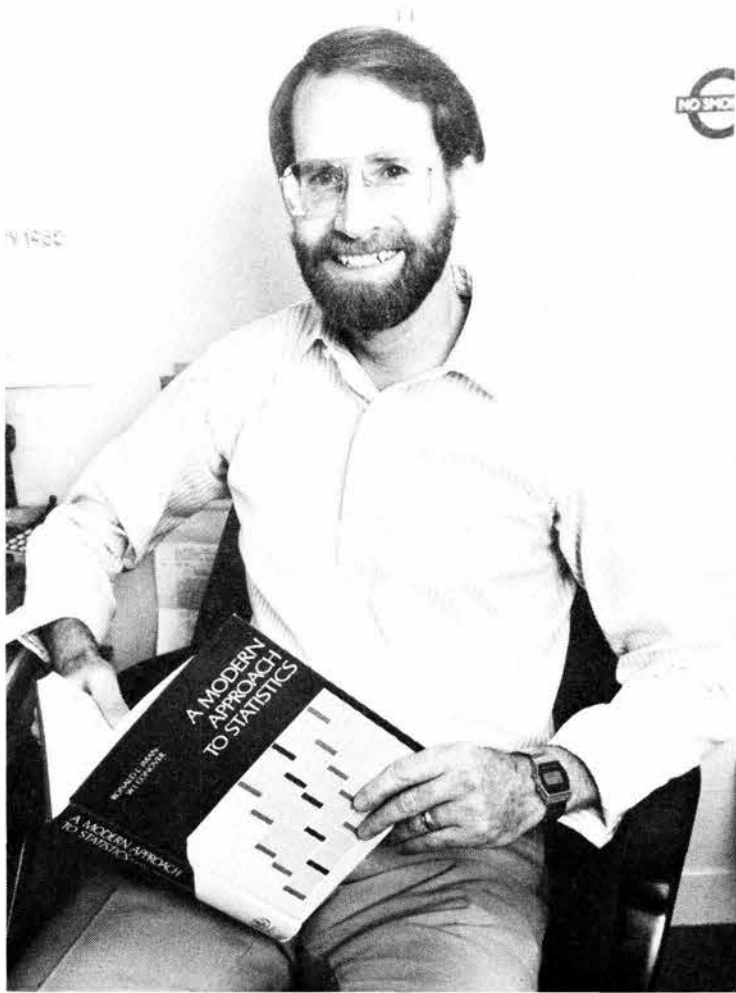
Gary Gallegos (7473) 10



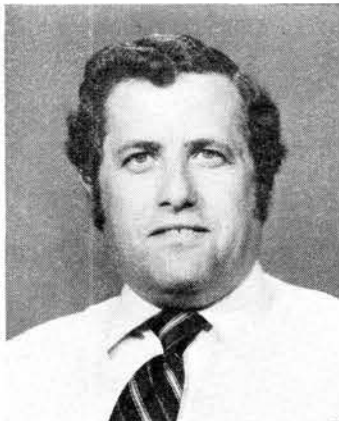
Sam Beard (1633) 20



Joe Melograne (3426) 10



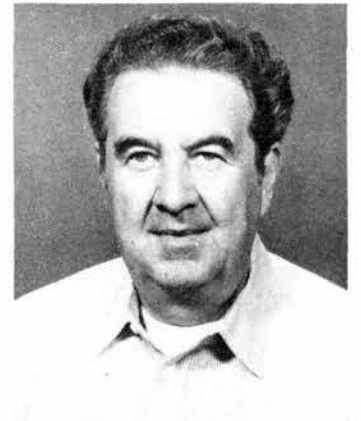
Ron Iman (6415) 10



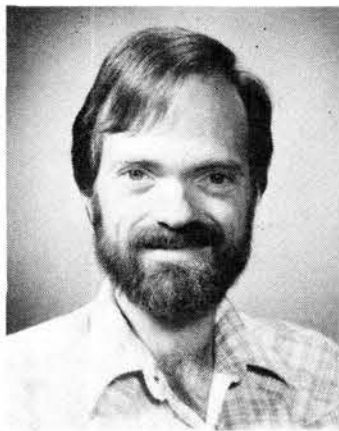
Melvin Baer (1513) 10



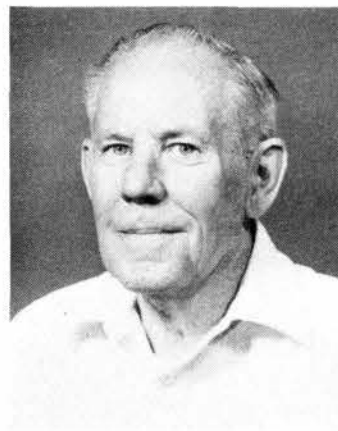
Jerri Dye (3460) 10



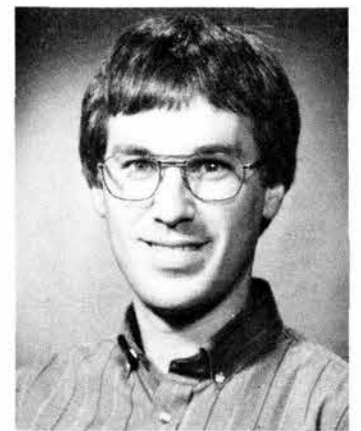
Don Gatto (3422) 10



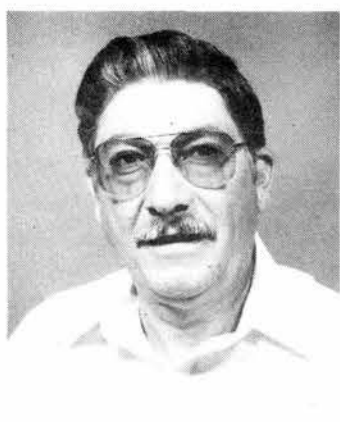
Lee Orear (1813) 10



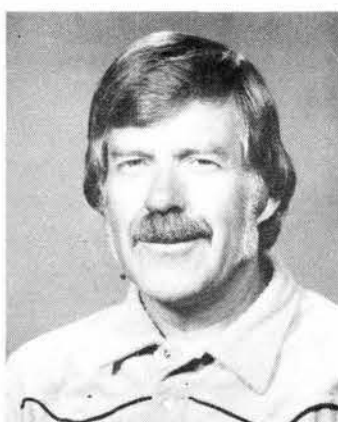
Floyd Hursh (2833) 30



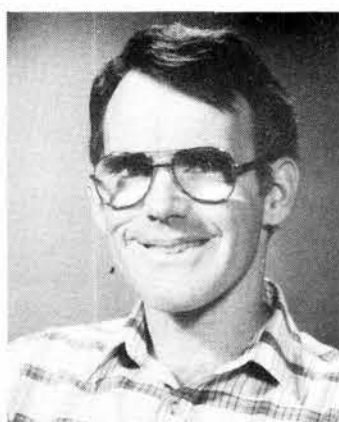
Bill Drotning (1824) 10



Joe Lovato (3428) 20



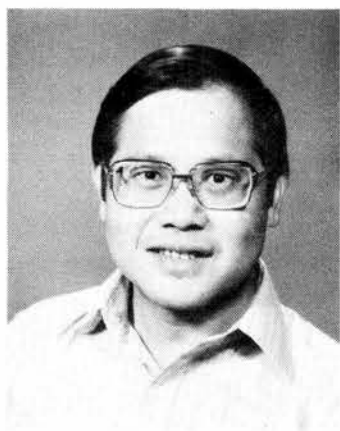
John Bornholdt (2542) 10



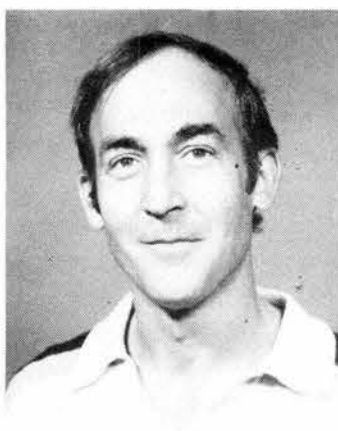
Drayton Boozer (5343) 10



Delfin Bangate (2314) 10



Tom Lin (6315) 10

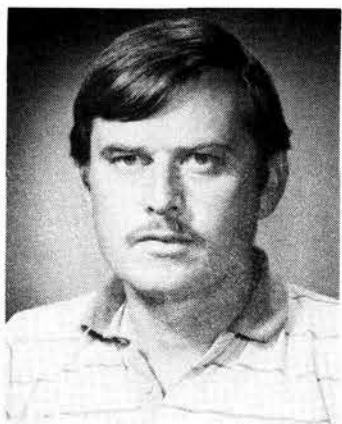


Phil Walkington (7552) 20

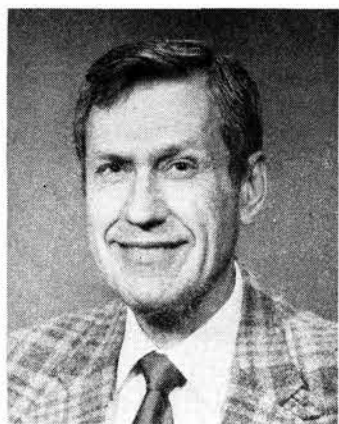


Socorro Silva (3321) 10

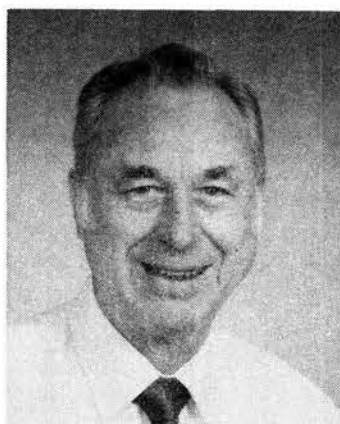




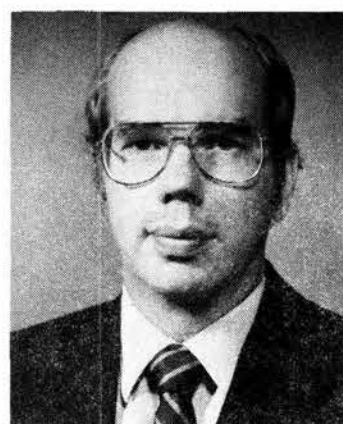
Mert Fewell (6227) 10



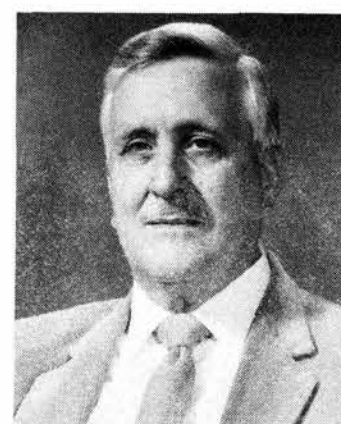
Everett Ard (7252) 35



Ed Holbrook (8181) 30



Bill Wowak (6322) 10



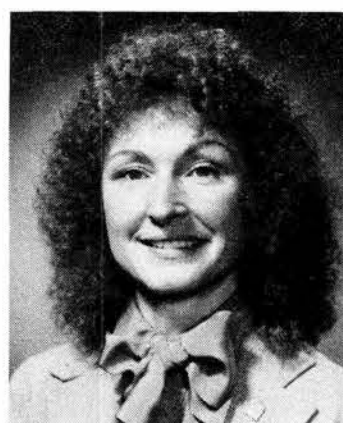
Bob Fleming (3425) 35



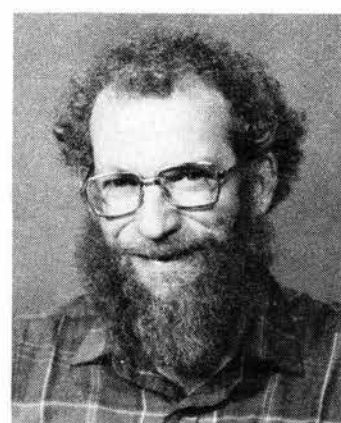
Dean Kuehl (7137) 25



Hugh Walker (7523) 10



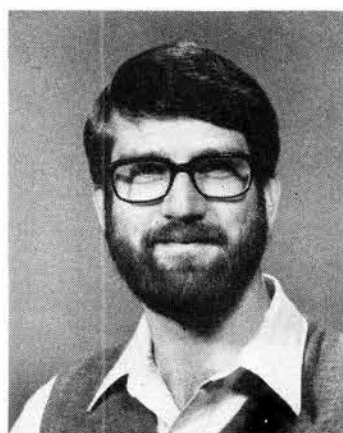
Sieglinde Neuhauser (6321) 10



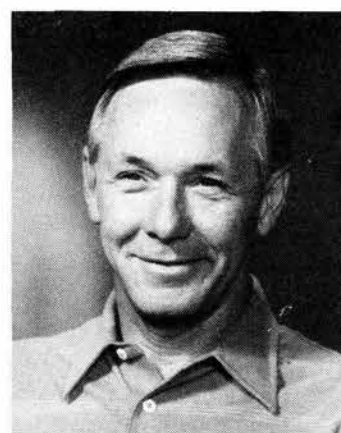
Bill Davey (1533) 10



Gerald Cobb (5249) 35



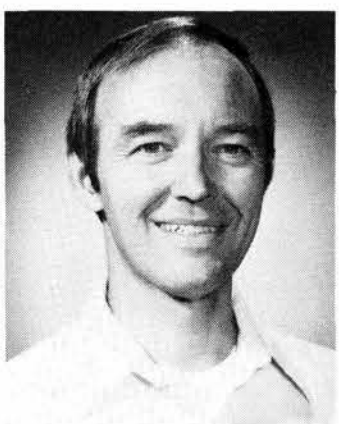
Lyndon Pierson (2633) 10



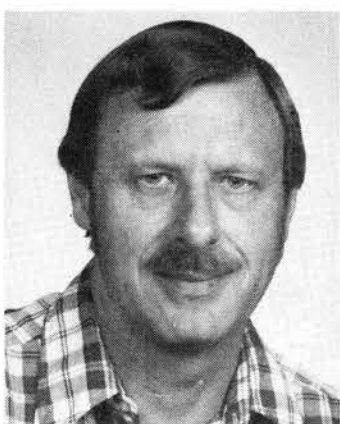
James Freese (2525) 25



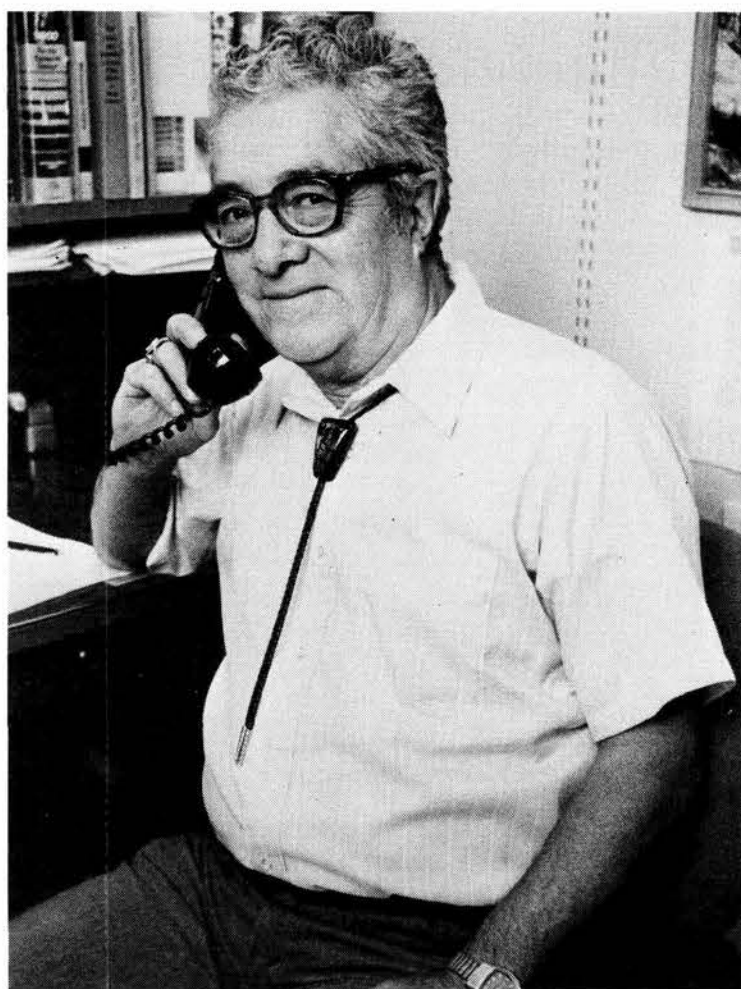
Toyoko Lee (2826) 10



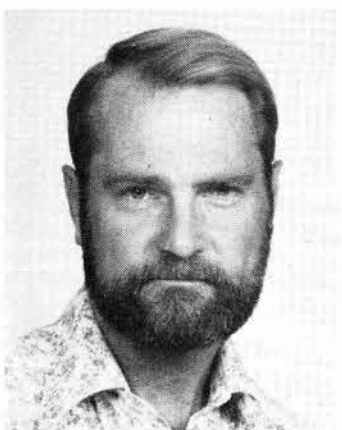
Tom Linnerooth (2113) 20



Don Chenoweth (8244) 20



Al Lujan (5233) 35



Cal Feemster (8313) 20



John Tenbrink (5171) 35



Maria Owens (3461) 10



## Albuquerque

John Gallegos (2631)  
Marilyn Goodrich (5314)  
Patricia Zeiger (2631)  
Wade Ishimoto (3436)  
James Phillips (7111)  
Nancy Robles (155)  
John Zepper (3734)  
Richard Simpson (6423)

## Welcome

Arizona  
Jerome Stofleth (7132)  
Arkansas  
Ronald Pedersen (2543)  
Illinois  
Paul Berlowitz (1134)  
Missouri  
Janet Williams (7841)  
New Mexico  
Gene Clardy (3155)

Sophia Garcia (22)  
Emily Giese (155)  
Regina Jaramillo (3426)  
Joann Smith (21)  
William Fowler (1824)

New York  
Walter Gerstle (1542)

Tennessee  
Lonnie Bivens (5144)

## UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

**Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.**

### Ad Rules

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8½ by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per issue per category.
8. No more than two insertions of same ad.
9. No "For Rent" ads except for employees on temporary assignments.
10. No commercial ads.
11. For active and retired Sandians and DOE employees only.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

### MISCELLANEOUS

FISHER STEREO double cassette deck, duplicates and plays up to 3 hrs. continuous music, brand new, still boxed, \$100. Hesch, 268-6122.

PAIR ANTIQUE carved oak, leather upholstered chairs, circa 1880; parson's upholstered bench, circa 1920; 3 theater seats, 1920. Castillo, 242-9601.

ROSSIGNOL SKIS, size 140, \$75; Tonic poles, \$20; Mundari boots, size 5, \$40; all used only 6-7 times. Bedingfield, 268-3579 after 5.

12-STRING GUITAR, acoustic, with case, \$125. Marquez, 344-8455.

PAIR STEREO SPEAKERS, 28"H x 18"W x 13"D, handmade, 10" speakers, \$40/pair. Harris, 268-7648.

NEW FRENCH DOOR with insulated glass, 36" wide; aluminum frame, insulated glass window with screen, approx. size 4' x 5'. Davie, 296-3950.

AIRLINE TICKET, one-way from Hartford to Albuquerque, December 31, 1985, best offer. Roan, 892-7299 after 7:30.

CHILD'S X-C SKIS, Trak no-wax, 150cm w/75mm bindings, \$30; ski poles, 105cm, \$5; 2 pair child's X-C boots, sizes 36/37, each \$7. Anderson, 294-8451 after 5.

3-PIECE LIVING ROOM SET, 2 chairs, 1 couch, \$30 for set. Simons, 821-9343.

PIONEER STEREO SYSTEM, \$95; stone grain mill (hand), \$40; queen box springs, \$10. Campbell, 294-1380.

TASCO 4½" reflecting telescope, \$250; antique steamer trunk, circa 1900, \$40; household furniture. Gregory, 293-2080.

TV, 19" GE color, just reconditioned, \$150 OBO; draft beer system, complete w/refrigerator, lines, CO₂ tank and keg, \$150 OBO. Young, 884-7836.

SEARS DRYER, white, working condition, \$35. Lis, 822-1189.

TELESCOPE, 525 power, Tasco Model 59T, 56X, 168X, 175X, 525 x 60mm, paid \$212, want \$140, never used. Kinabrew, 869-6300.

1861 US SPRINGFIELD 45 cal. percussion rifle, \$250 OBO. Romero, 864-2479.

NIKON MD-12 motor drive, fits FA, FE2, FE, FMZ, FM, still under warranty, \$130. Passman, 821-4999.

TAKAMINE ELECTRIC ACOUSTIC GUITAR and phaser amp, \$800. Rivera, 831-4501 after 5.

ZERO-CLEARANCE HEAT CIRCULATING FIREPLACE, Superior Model B1038, w/forced air kit, glass doors and chimney pipe, \$300. Kobs, 281-1102.

INDIAN CHILD PASTEL, Gerda Christoferson, 1962, 60% appraisal; 3 Bud O'Dell wood carvings, 60% appraisal. Ginn, 883-0004.

REFRIGERATOR, GE no-frost, 21 cu. ft. harvest gold, \$150; sofa/double hide-a-bed, earthtone colors, \$125; twin bed frame, \$10. Drotning, 294-4807.

COUCH AND CHAIR, 2 yrs. old, brown, \$150. Tucker, 292-8954.

TRIVIAL PURSUIT game, Genus edition plus Baby-Boomer set, used once, both sets for \$30. Barr, 821-5870.

**THANKS to the Thanksgiving holiday,** the deadline for ads and for all other items for the Dec. 6 LAB NEWS is noon on Wednesday, Nov. 27.

XMAS TREE, 7', \$35; deacon's bench, Ethan Allen, \$75; copper pipe, 1¼" X 11", type K, \$20; sprinkler valves, \$5. Kohut, 884-1405.

LUMINARIAS, to benefit Albuquerque Youth Symphony, \$4/doz., free delivery on 3 doz. or more. Miyoshi, 821-9118.

RADIO SHACK MOD-1 COMPUTER, complete system w/table, modem, 2 disks, games, FORTRAN, word processor, much more, \$500; baby car seat, \$20. Barnette, 292-5186.

GE PORTABLE STEREO AM/FM and cassette, detachable speakers, \$65. Linnerooth, 299-6558.

AUDIOVOX CAR STEREO AMPLIFIER, 40-watt, new, in box, \$15; boy's 20" bike, \$15. Byrne, 869-6937.

PIANO, Cable spinet, mahogany cabinet, needs tuning, \$500 firm. Smith, 299-5030.

BICYCLE FRAMESET, Guerciotti, 61cm, Columbus SL, double-buttend tubing throughout, stiff frame, minimal wasted energy. Loucks, 281-9608.

CAMPING TRAILER, Sterling, single axle, \$1200 OBO; 18 cu. ft. Sears upright freezer, \$250; electric clothes dryer, \$50. Liguori, 881-3759.

TV, 25" COLOR CONSOLE, \$150; Atari video game plus 14 cartridges, \$90; carpet, 175 sq. yds., \$2/yd. Philbin, 292-1352.

CEMETERY LOTS, Sandia Memory Gardens, cost \$425 each, make offer. Vandt, 255-0685.

SKIS, X-COUNTRY, waxless, 215cm w/bindings, \$25; Look Nevada downhill bindings, \$25; H78-15 new tire and 6-hole Chev. rim, \$40. Shunny, 265-1620.

CANNING JARS, 4 doz., \$3/doz.; wide mouth jars, 1½ doz., 10 cents ea. Luikens, 881-1382.

OVER/UNDER 20 ga. Mag/222 Mag, \$150; 22-cal. rifle, \$50; 42-lb. hunting bow, \$25. Everett, 296-8786.

BRUNSWICK BILLIARD TABLE, 4' X 8' model, ¾" slate bed, accessories, \$425; Sears 6-ft. pool table, accessories, \$45. Hoke, 298-6619.

RCA 17" COLOR TV, Zenith compact stereo, maple coffee table, \$150 each; Bundy clarinet, \$100. Harvey, 296-8712.

GUITAR, Yamaha, 6-string acoustic, w/case, SG770S, new, \$300 OBO;

Sears "Atari" game system with 18 games, \$100 OBO. Ford, 294-6133.

WINDJAMMER MOTORCYCLE FAIRING, w/brackets for Honda CB750K or Kawasaki KZ650, \$150. Barnard, 831-4114 evenings.

DOORS AND HATCHBACK for '73-77 Honda Civic, \$45 ea.; Singer sewing machine in cabinet, \$35. Zirzow, 294-7296.

SCHWINN Model XR-8 exercise bike, \$210; antique dome-top trunk, oak with inner tray, \$100. Van Den Avyle, 898-6474.

TELEMARK SKIS, Atomic CCS Leaders, 200cm, offset metal edges w/bindings; no-wax Karnu Kodiak 210cm w/bindings. Ritchey, 268-7620.

REFRIGERATOR, about 10 yrs. old, Frigidaire, \$75 OBO. Hughes, 265-1698.

DINETTE TABLE/4 CHAIRS, \$50; coffee table, \$30; end tables, \$30; 2 lamps, \$20; dresser/mirror, \$40. Falacy, 293-2517.

DRAFTING TABLE, \$200; skis, 192cm, 195cm, w/Salomon 444 bindings, \$50 ea.; size 10 Nordica ski boots, \$40. Van Theemsche, 299-3409.

CHRISTMAS TREE, 6½', green artificial fir, very full, flame-retardant, includes stand and some lights, \$20. Allen, 296-6453.

STEREO, GE console, solid maple, \$100. Loeber, 821-3674.

MOVING SALE, Nov. 22-23, 2709 Nakomis NE: sewing machine, cherrywood cocktail and end tables, stereo, dishes, etc. Mason, 265-1132.

COMPUTER, Commodore 64 w/1541 diskdrive; MPS801 printer, Zenith monochrome monitor, power supply, modem, \$300 software, new \$1200, sell \$575 OBO. Griego, 299-0426 after 5.

THERMAL DOT MATRIX PRINTER w/interface for CM-64 computer, 80 column, 140 cps, \$100; cordless telephone, \$50. Simpson, 296-4588.

FREE: wirehair mix dog, 13 lbs., female, spayed, shots current, good w/children, needs country or high-fenced yard, w/travel kennel. Williams, 897-1807.

4 TIRES, 12/16.5 mud and snow w/approx. 1/3 tread remaining, \$40. Snelling, 294-5751.

26" BOY'S BICYCLE, 3-speed, \$50; teakwood coffee table, \$30; new J.C. Penney's white tweed curtains and shears, 2 sets, \$75. Lambert, 294-4188.

### TRANSPORTATION

DECOSTER BMX BICYCLE, 20" chrome frame, TUF wheels/neck, foot/hand brakes, California Lite pads, no. plates, mushroom grips, \$105. Snelling, 294-5751.

'67 MUSTANG classic, 289 V8, runs good, needs body work. Davis, 881-7068.

'69 MERCEDES 280S, 4-dr., AT, AC, AM/FM cassette, good tires, \$2300 OBO. Loving, 298-0338 evenings or weekends.

'66 MUSTANG, good condition. Lovato, 831-2735.

'82 CAPRI, 2-dr. hatchback, 4-spd. manual, 26K miles, \$3000. Conlon, 268-1613.

'77 CHEV. Malibu, 2-dr., 6-cyl., AM/FM, runs, \$250. Preston, 821-8028.

'73 DODGE ¾-ton pickup, club cab, 30K miles on rebuilt 400 CID engine, loaded, good tires, \$2200. Nunez, 884-3623.

'79 YAMAHA 650 Special, less than 6K miles, full fairing, \$900 OBO. Marquez, 836-7115.

'79 DATSUN 210 DLX, AM/FM stereo cassette, \$2800. Ellison, 294-1263 evenings and weekends.

'80 HONDA Accord LX, loaded, 5-spd., one owner, service records, 87K miles, \$3650 OBO. Youngblood, 296-0379.

'84 FIERO, AT, AC, stereo, below book. Mullen, 266-2804.

'57 CHEV., 4-dr., 6-cyl., new inside, good body; Honda, 90cc, off road motorcycle, needs work, \$40 OBO. Pierce, 299-2801.

'81 TRIUMPH TR7 convertible, 5-spd., AC, AM/FM cassette stereo, 30K miles, last of the Triumphs, \$5500. Mills, 881-9509.

'65 CHEV. II Nova, 4-dr., 6-cyl., AM/FM, 230 engine, \$2000 OBO. Miller, 292-5067.

'69 COMET, 6-cyl. rebuilt, new paint and radial tires, good gas mileage, \$750. Romero, 864-2479.

'71 FORD stn. wag., PS, PB, AC, \$500. Rosinski, 294-1908.

'84 FORD XLT Supercab pickup, V8, 20K miles, many extras, \$9950. Goekler, 296-4162.

'78 PONTIAC Bonneville, 301 V8, 4-dr., AC, AT, PS, cruise, AM/FM stereo, power door locks, original owner, 63K miles, \$2750 OBO. Orrell, 821-8742.

'78 FORD Fairmont Futura, 6-cyl., 2-dr., AT, PS, PB, AC, 62K miles, \$1775. Harrington, 294-6368.

'74 CORVETTE, 350 V8, AT, last year to run on reg. gas, bright orange, mag wheels, asking \$7500. Gentry, 298-3574.

'76 HARLEY Sportster, custom paint, chrome, sound but needs cosmetic work, \$2000. Morris, 881-0759, call for appointment between 8-10 a.m.

'74 ½-TON AMT PICKUP, PS, PB, AM/FM cassette, camper shell; Yamaha, \$800. Maldonado, 836-4089.

GIRL'S 20" BICYCLE, puncture-proof tires and training wheels, \$38. Vandt, 255-0685.

'76 280Z, parting as is, LF wheel damage, some recent underhood repairs, almost new steelbelts, std., AM/FM cassette, AC, \$2000. Hernandez, 268-5000.

'85 HONDA V-45 MAGNA, broken speedometer glass, 2500 miles, \$2850. Alsbrooks, 883-8114.

'70 FORD LTD, 101K miles, V8, AT, AC, \$200. Sherman, 292-3297.

'78 4X4 RAMCHARGER 360, AT, AC, PS, trailer package, 58K miles, \$3500. Everett, 296-8786.

'78 VW DASHER, 4-dr., AC, AT, AM/FM/stereo/cassette, new radials, 68K miles, \$1900. Williams, 1-864-3617.

'78 TOYOTA Celica ST, original owner, 93K miles, AC, AM/FM, 8-track, window louvers, \$1750. Barnard, 831-4114 evenings.

'79 HONDA XL500S street/dirt bike, 5770 miles, new rear tire, \$750. Kuzio, 292-1634.

'84 BRONCO II, AC, 24K miles, new front tires, \$8900. Collins, 281-2955.

'75 PONTIAC convertible, runs well, body work/new top needed, 45K miles on rebuilt engine, \$1000. Stuart, 293-1546 after 7.

'81 HONDA CX500D MOTORCYCLE, shaft-drive, water-cooled, new tires and battery, fairing, crash bars, luggage rack, \$1175 OBO. Zirzow, 299-7296.

'70 ½-TON CHEV. PICKUP, 2-tone, long/wide bed, 350 cu. in. V8, AT,

radio, asking \$1000. Sena, 298-1554.

BMX BIKE, Race, Inc., cost \$400+, \$200. Campbell, 294-6000.

'75 PLYMOUTH Fury stn. wgn., it runs, \$500 OBO. Hughes, 265-1698.

### REAL ESTATE

3 BDR., 1½ bath, den, fireplace, pitched roof, double garage, on ½ acre, NW valley. Romero, 898-1729.

ADOBE TOWNHOUSE, North Rio Grande, 1200 sq. ft., 2-bdr., brick floors, vigas, amenities, 10.5% assumable loan, \$77K. King, 299-9184.

CEDAR CREST MOUNTAIN HOME, 3 acres, borders national forest, passive & active solar, spa & sauna, assume 11.5% or refinance. Miller, 281-9828.

'64 MARQUETTE MOBILE HOME, 10' X 55', w/enclosed porch, located in North Valley Park, \$6500. Rich, 897-0491.

ENERGY EFFICIENT BRICK HOME, 2200 sq. ft., landscaped, large assumable 8½% loan, terms available. Beck, 256-3350.

MOBILE HOME, 24' X 65', United, 2-bdr., 2-bath, awnings, new carpet/drapes, wet bar, The Meadows Mobile Home Park. Dalin, 821-1991.

4-BDR. HOME, 2000 sq. ft., 1½ bath, LR/DR, large kitchen, landscaped w/auto. sprinklers, gazebo w/spa, Eldorado school, available 4/86. Ratzel, 821-6368.

41 WOODED ACRES, Manzano mtns., borders on road, 3 miles west of Torreon, 1 hr. from Albuquerque. Stearns, 298-0444.

### WANTED

ROOMMATE, Dec. 1st, \$225/mo. rent plus ½ utilities, close to work. Levin, 299-0891.

CONDO RENTAL for one week on Kauai or Maui, last half of December. Falacy, 293-2517.

AUTOMATIC WASHER AND DRYER, need not be a set, must be in excellent condition. Underhill, 299-8642.

ROOMMATE, female, 2-bdr. apt., NE Heights, secure, bus line, extras, \$210 plus ½ of utilities, avail. Dec. 1. DeWerff, 247-0751 days, 298-3683 evenings.

'74 PINTO shop service manual. Coleman, 884-5009.

EAGLE SCOUTS, by Cub Scout Pack 460 (Sandia Base School) for participation in service/recognition activity, send name, address, phone number to Dave McCloskey, 1520.

RIDER to Phoenix area, leaving December 21, returning sometime between January 1 and 5, share driving and expenses. DiMarzio, 881-9231.

PICKUP BED to fit '78 Chev. short/wide. Morrison, 877-7425.

LADIES SKI CLOTHING, boots size 8½ or 9, pants size 14; exercise bike with rowing handlebars. Joseph, 299-6989.

SKI RACK for cartop use, either rain gutter or luggage rack mount. Dell, 291-0274.

2-DRAWER FILE cabinet. Shunny, 265-1620.

LADIES 3-, 5-, or 10-spd. bike in good condition. Hill, 294-7534.

### LOST & FOUND

LOST: 3-hoop gold earring w/6 small diamonds in center, between parking lot west of Wyoming and Bldg. 836. Martinez, 6-6233.



## Western Night Coming Up

TOMORROW NIGHT is the big one for this month. You'd better dust off those boots, because it's Western Night at ye old Club corral! The saloon opens at 5 p.m. — who knows, Miss Kitty might even be there. A buffet (can you believe \$4.75?) from 6-8 will feature all-you-can-eat BBQ ribs, western baked beans, coleslaw, and other assorted rib-sticking goodies. Those country-western favorites, the Isleta Poor Boys, will follow up with their own special stompin' music. Don't miss out on the fun — call the Club office right now for reservations.

TONIGHT the Friday night two-for-one dinner special gives you a choice of prime rib or salmon steak for \$12.95. Yes, you read it right — that's for *two* dinners. A group called "Together" will help you get that way for dancing afterward.

NEXT WEDNESDAY, Nov. 27, Chef Hank Perez and his crew will prepare a special Thanksgiving luncheon for your eating pleasure, available from 11 a.m. - 1:30 p.m. at the Club. Turkey or ham, with all the traditional trimmings, for a bargain price of \$2.90. The regular lunch line will be open too.

THOSE THUNDERBIRD retiree card players are at it again. Only this time around, on Dec. 11 starting at 10:30 in the Eldorado room, they're gonna get you in the holiday mood by combining the usual card games with a Christmas party. All kinds of munchies and snacks, not to mention the rest of the fun and games.

WHAT DO YOU DO the day after Thanksgiving (besides groan a lot, that is)? The answer is easy enough — you have all day Friday, Nov. 29, to recuperate from the day before (remember — it's Energy Conservation Day), and then you head out to the Club for the two-for-one special. Filet mignon or fried shrimp (no turkey!) for \$12.95, with other entrees also available at different prices. Don Lesmen and his group offer that big-band sound to get you in the dancing mood.

THE ANNUAL KIDS' Christmas party will be held at the Club on Saturday, Dec. 7. The fun starts at 9:30 a.m., with cartoons, followed up by carol singing and a puppet show. Then, for the big event of the morning: the arrival of that jolly old fellow in the red suit trimmed with white fur! Soft drinks and popcorn will be available. Admission charge for this popular event, limited to children of members only, is \$1 per child, or a can of food for the needy.

TRAVEL — Have you done yourself a favor yet and signed up for the Caribbean Cruise? Leave the snow behind Feb. 15-22 by getting aboard the fabulous Sun Princess at San Juan, Puerto Rico, for a cruise to six ports of call. The \$1415-\$1572 price per person includes round trip air fare from ABQ to San Juan, transportation from San Juan

## Don't Go Up the Creek Without a Battle

Sandians are a traveling lot. Witness the number of unusual vacation stories in the LAB NEWS — and imagine the number of "usual" vacations we take. Then, of course, many of us travel thousands of miles on business.

Traveler or not, we've all seen the ad on TV. The happy, vacationing couple suddenly discover they've lost their traveler's checks. If they've purchased the right kind, they can get an instant refund. Problem solved. Vacation continues.

Although many of us do travel thousands of miles with few or no problems, some Sandians have learned the hard way that some situations can frustrate, thwart, and bedevil both vacationers and business travelers, and these problems sometimes aren't quite so easily solved.

Suppose

- you get "bumped" from an airline flight for which you had a confirmed reservation.

- the airline loses your luggage — permanently.

- you had a confirmed, guaranteed, pre-paid reservation at a nationally known, otherwise reputable hotel, and you arrive only to be informed that they've overbooked, and you have nowhere to go.

- you've rented a car from a nationally known car rental agency, and you find that you're under arrest because this particular car, which you've only had a matter of hours, has hundreds of dollars worth of unpaid traffic tickets charged against it.

- your travel agent completely misrepresents a package tour and refuses to do anything about it.

What do you do? What are your rights? Actually, you have very few.

According to Daniel Smith, consumer affairs officer of the International Airline Passengers Association in Irving, Texas, there are no federal regulations for either hotels or car rental agencies. "There is a contract between you and the hotel — sometimes it's on the back of the check-in form, other times it's not so easily available," he says. "A hotel has to do only what it says it

will. Many hotels will use a 'walking' policy. In other words, if you have a confirmed reservation and they are overbooked, they'll take you to another, comparable hotel. But they do this only if they want to."

He also says that the same thing is true of car rental agencies: all they have to do is honor their car rental agreement — no more, no less. He suggests that it might be wise to read it thoroughly.

Like hotels, airlines frequently overbook flights to compensate for cancellations and no-shows. Sometimes they end up with too many people, and somebody gets "bumped" off the flight.

The Department of Transportation (which recently replaced the Civil Aeronautics Board) regulates airlines and requires them to seek out volunteers before bumping anyone involuntarily. If the airline can get you to your destination within one hour of your originally scheduled arrival time, it doesn't have to compensate you. However, as an incentive, many airlines offer discounts or credits for future tickets — an advantage if you have time to spare.

Before you volunteer, see if the next flight is acceptable to you, and make sure your seat is *confirmed* because, if you are only on a waiting list, you could end up stranded.

Also, find out if the airlines will provide such things as food and lodging if you have to wait overnight for a flight. If not, you may have to spend the money offered you.

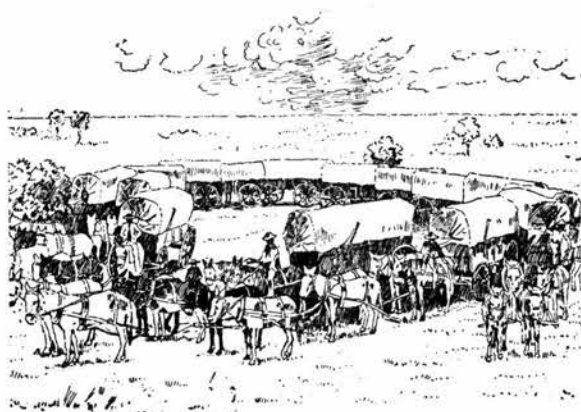
If you don't have time to spare, be sure to get to your gate early. If no one volunteers, airlines usually bump the last people to show up.

Again, if the airline can get you to your destination within one hour of your originally scheduled arrival time, it is not obligated to offer you any additional compensation. If, however, you are scheduled to arrive one to two hours late, you can get up to \$200 in addition to the face value of your ticket. If your delay is longer than two hours, the maximum compensation is \$400.

The Consumer Protection Division of the NM Attorney General's office suggests that you allow some leeway in your schedule because cancelled and delayed flights are quite common. Airlines usually refuse to pay passengers for financial losses resulting from these delays because their schedules aren't guaranteed.

If you're traveling on behalf of Sandia and you have problems, Craig Summers (3743) suggests you do all you can to solve the problem on site. "The person on the spot usually has more resources available than we do," he says. He also says that Sandians should do whatever is necessary to continue the trip, keeping in mind SLI 4600 (the Sandia travel policy), which states that travel should be as economical as possible and minimize time away from work. After you've done what you can, call either Craig or SATO.

The frequent traveler finds that airlines, hotels, car rental agencies, and travel agents are usually as efficient and helpful as possible. But travelers have to be as prepared and as informed as possible.



WE DON'T have to circle the wagons anymore, but travel can still be fraught with frustration.

airport to the Sun Princess pier, port and departure taxes, and on-board accommodations. Reservation deadline is Dec. 13, so call either the Club Office or Zia Travel Services now (10 percent deposit required). What a terrific Christmas/Valentine present for someone on your list!